UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 1304
6– 30 April 2013

CC Reference 14 -06
27 June 2014

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093-0227

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

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INTRODUCTION

The data presented in this report were collected during cruise 1304* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the NOAA vessel FSV *Bell M. Shimada.* The CalCOFI program was organized in the late 1940's to study the causes of variations in population size of fishes of importance to the State of California. It is carried out by NOAA's National Marine Fisheries Service Southwest Fisheries Science Center, the California Department of Fish and Game, and the Integrative Oceanography Division (IOD) at Scripps Institution of Oceanography (SIO). IOD contributes to this program by investigations of the physical, chemical and biological structure of the California Current. Data from the cruises were collected and processed by personnel of the Integrative Oceanography Division and the Southwest Fisheries Science Center. CalCOFI data presented in this report and collected on previous cruises can be accessed at http://www.calcofi.org.

STANDARD PROCEDURES

CTD/Rosette Cast Data

A Sea-Bird Electronics, Inc., Conductivity-Temperature-Depth (CTD) instrument (Seabird 911+, Serial number 3161-936) with a rosette was deployed at each station on this cruise. The rosette was equipped with 24 ten-liter plastic (PVC) bottles equipped with epoxy-coated springs and Viton O-rings. Each CTD/rosette cast usually sampled 20 depths to a maximum sampling depth of 515 meters, bottom depth permitting. Occasional stations have multiple bottles tripped at the same depth to provide more water for ancillary programs. Additional bottle depths also appear in combined hydrographic and primary productivity casts. The sample spacing was designed to sample depth intervals as close as 10 meters around the sharp upper thermocline features such as the chlorophyll, oxygen, nitrite maxima and the shallow salinity minimum. Salinity, oxygen and nutrients were determined at sea for all depths sampled. Chlorophyll-*a* and phaeopigments were determined at sea on samples from the top 200 meters, bottom depth permitting.

Pressures and temperatures assigned to the water sample data were derived from the CTD signals recorded just prior to the bottle trip. Pressures were converted to depths by the Saunders (1981) pressure-to-depth conversion technique. CTD temperatures reported with the bottle data have been rounded to the nearest hundredth of a degree Celsius.

Salinity samples were collected from all rosette bottles and analyzed at sea using a Guildline model 8410 Portasal salinometer. Salinity samples were drawn into 200 ml Kimax high-alumina borosilicate bottles that were rinsed three times with sample prior to filling. The results were compared with the CTD salinity to verify that the rosette bottle did not mis-trip or leak. The salinometer was standardized before and after each group of samples with standardized seawater. Periodic checks on the conductivity of the standardized seawater were made by comparison with IAPSO Standard Seawater batch P152. Salinity values were calculated using the algorithms for the Practical Salinity Scale, 1978 (UNESCO, 1981a) and are reported to three decimal places, provided that accepted standards were met.

Dissolved oxygen analyses were performed with an Ocean Data Facility of Scripps Institution of Oceanography designed automated oxygen titrator using photometric end-point detection based on the absorption of 365nm wavelength ultra-violet light. A computer using PC software controlled the titration of the samples and the data logging. The method used a modified Winkler titration following the technique of Carpenter (1965) with modifications by Culberson (1991), but with higher concentrations of thiosulfate solution (50 g/l). Standard KIO3 solutions prepared ashore were run at the beginning of each run. Reagent and sea water blanks were determined to account for presence of oxidizing or reducing materials.

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* The first two digits represent the year and the last digits the month of the cruise.

Nutrient samples were analyzed at sea using a QuAAtro continuous flow analyzer (SEAL Analytical). Dissolved silicate, nitrate, and nitrite were analyzed using a modification of the method described by Armstrong (1967) and Gordon et al. (1992). Phosphate was measured with a modification of the Murphy and Riley (1962) protocol and ammonium is analyzed using a modified fluorometric method described by Kerouel and Aminot (1997). Samples were collected in 45ml high-density polypropylene screw top tubes which were acid washed and rinsed with sample three times prior to filling. Standardizations and cadmium-reduction coil efficiency determinations were performed at the beginning of every run. Drift corrections were performed in each run using a high standard inserted before and after sample sets. A sample of reference material for nutrients in seawater (RMNS), produced by KANSO technos (www.kanso.co.jp) was included in every run and those data were used to adjust values for nitrate, nitrite, phosphate, and silicate if appropriate. Samples not analyzed immediately after collection were refrigerated and run the following day.

Samples for chlorophyll-*a* and phaeopigments were collected in calibrated 138 ml polyethylene bottles and filtered onto Whatman GF/F filters. The pigments were extracted in cold 90% acetone (Venrick and Hayward, 1984) for a minimum of 24 hours. Chlorophyll-*a* and phaeopigment concentrations were determined from fluorescence readings before and after acidification with a Turner Designs Fluorometer Model 10-AU-005-CE (Yentsch and Menzel, 1963; Holm-Hansen *et al*., 1965).

Evaluation of the water sample data involved comparisons with the CTD data, adjacent stations and consideration of the variation of a property as a function of density or depth and the relationships with other properties (Klein, 1973). Precision estimates for routine analyses were made on CalCOFI cruise 9003 and are reported in SIO Ref. 91-4.

Primary Productivity Sampling

Primary productivity samples were taken each day shortly before local apparent noon (LAN). Primary production was estimated from ^{14}C uptake using a simulated *in situ* technique. Light penetration was estimated from the Secchi depth (assuming that the 1% light level is three times the Secchi depth). The depths with ambient light intensities corresponding to light levels simulated by the on-deck incubators were identified and sampled on the rosette up-cast. Occasionally an extra bottle or two were tripped in addition to the usual 20 levels sampled in the combined rosette-productivity cast in order to maintain the normal sampling depth resolution. Triplicate samples (two light and one dark control) were drawn from each productivity sample depth into 250 ml polycarbonate incubation bottles. Samples were inoculated with 11.03 µCi of ^{14}C as $NaHCO_3$ (50µl of stock solution) prepared in a 0.3 g/liter solution of sodium carbonate (Fitzwater *et al*., 1982). Samples were incubated from LAN to civil twilight in seawater-cooled incubators with neutral-density screens which simulate *in situ* light levels. At the end of the incubation, the samples were filtered onto Millipore HA filters and placed in scintillation vials. One half ml of 10% HCl was added to each sample. The sample was then allowed to sit, without a cap, at room temperature for 12 hours (after Lean and Burnison, 1979). Following this, 10 ml of scintillation cocktail were added to each sample and the samples were returned to SIO where the radioactivity was determined with a scintillation counter. Salinity, oxygen, nutrients, chlorophyll-*a* and phaeopigments were determined from all rosette productivity bottles.

Macrozooplankton Net Tows

Macrozooplankton was sampled with a 71 cm mouth diameter paired net (bongo net) equipped with 0.505mm plankton mesh. Bottom depth permitting, the nets were towed obliquely from 210 meters to the surface. The tow time for a standard tow was 21.5 minutes. Volumes filtered were determined from flowmeter readings and the mouth area of the net. Only one sample of each pair was retained and preserved. The biomass, as wet displacement volume, after removal of large (>5 ml) organisms, was determined in the laboratory ashore. These procedures are summarized in greater detail in Kramer *et al*. (1972).

Avifauna Observations (Farallon Institute of Advanced Ecosystem Research)

Sea birds were counted within a 300-meter wide strip off to one side of the ship. Counts were made while underway between stations during periods of daylight. These counts were summed over 20 nautical mile (nm) intervals, or the distance between consecutive stations, whichever was less.

Ancillary Programs

Several ancillary programs produced data on these cruises that are not presented in this report. These programs include:

1) *Underway Data*: Continuous near surface measurements of temperature, salinity and *in vivo* chlorophyll fluorescence were recorded from seawater pumped through the ship's uncontaminated seawater system. Water was drawn from a depth of approximately 3 meters. The data were logged in one-minute averages using a Sea-Bird Electronics, Inc., SBE 45 MicroTSG and SBE-21 TSG Thermosalinographs and a Turner Designs Fluorometer Model 10-AU-005-CE.

2) *California Current Ecosystem Long Term Ecological Research Program*: The CCE-LTER program augments standard CalCOFI measurements to further characterize the lower trophic levels as well as the carbon system. These additional samples, taken at all CalCOFI stations, are for measurements of particulate organic carbon and nitrogen, dissolved organic carbon and nitrogen, taxon-specific phytoplankton pigments, flow-cytometric counts of bacteria and picoautotrophs, microscopic counts of nano- microplankton, determination of mesozooplankton size structure using a Laser Optical Plankton Counter, and mesozooplankton community structure with a Planktonic Rate Processes in Oligotrophic Ocean Systems (PRPOOS) net. (M. Ohman, SIO)

3) *Southern California Coastal Ocean Oberving System (SCCOOS) Nearshore Observations*: The objective of these observations is to extend CalCOFI time series to the nearshore. Nearshore observations consist of 7 stations at the ends and interspersed with current CalCOFI lines on the 20 m isobath with a standard set of CalCOFI observations. (R. Goericke, SIO)

4) *Inorganic Carbon System*: The CalCOFI group collected samples for the characterization of the inorganic carbon system at selected locations along the cruise track. Total inorganic carbon and alkalinity will be measured which will allow the calculation of pH and pCO_2. The objectives of these measurements are first the long-term characterization of the inorganic carbon system and its response to changing ocean climate and second measurements of pH in the coastal zone in order to monitor the impact of 'corrosive' waters on benthic ecosystems in the Southern California Bight. (R. Goericke, SIO)

5) *Marine Mammal Observations*: During daylight transits, visual line-transect surveys were conducted by marine mammal observers focusing on cetaceans. Acoustic line-transect surveys were performed using a towed hydrophone array which consists of multiple hydrophone elements that sample sounds up to 100 kHz allowing for localization of calling animals. Acoustic monitoring also takes place on individual stations using sonobuoys. (J. Hildebrand, SIO)

6) *Nitrate Isotope:* Seawater samples are acquired using the CTD-rosette and shipped frozen to Princeton University. The nitrogen and oxygen isotopic composition of nitrate is measured using strains of denitrifying bacteria that reduce nitrate to N2O. (P. Rafter, Princeton University)

7) *Advanced Laser Fluorometer Analyzer (ALFA)*: Continuous underway analysis of phytoplankton pigment groups and variable fluorescence (F_v/F_m). ALFA, developed by A. Chekalyuk at Lamont-Doherty Earth Observatory, uses laser stimulated emission at 405 and 532 nm together with spectral deconvolution analysis to distinguish fluorescence from three types of phycoerythrin, chlorophyll-*a*, and chromophoric dissolved organic matter (CDOM). The ALFA is useful for differentiating the contribution of cyanobacteria and cryptophytes from other phytoplankton taxa present in natural phytoplankton assemblages, as well as for assessing phytoplankton photophysiological status. (R. Goericke, SIO)

8) MBARI scientists collect samples for analysis of TCO2 (DIC+DOC), Nutrients (Phosphate, Silicate, Nitrate, Nitrite, and Ammonium), Chlorophyll, C14 and N15 Primary Production, and surface Phytoplankton samples of A*, HPLC, POC, FCM, and Quanitative Phytoplankton (QP) at stations occupied on CalCOFI lines 70, 66.7 and 63.3. From the underway surface water, pCO2 and fluorometeric samples are taken. These samples and the cruises they are collected on support the studies of physical, chemical and biological dynamics off the west coast of Central California and have resulted in a rich and consistent history of ocean dynamics, from seasonal variations to longterm trends, such as El Nino Southern Oscillation (ENSO) and the Pacifc Decadal Oscillation (PDO). Cycles which have direct effects on the coastal marine life and economy. (F. Chavez, MBARI)

9) *Underway Sea Surface xCO2:* Continuous measurements of the partial pressure of CO_2 were made from the ship's uncontaminated seawater system on CalCOFI lines 70, 66.7 and 63.3. The seawater was equilibrated in a diffusion chamber that was then analyzed with a Licor 6262 infrared CO_2/H_2O analyzer. One-minute averages were recorded and the mole fraction of CO_2 (xCO_2) at sea surface temperature was calculated. The system was calibrated with standard gases traceable to CMDL every two hours; at that time absolute zero and atmospheric samples were also collected. (G. Friederich, MBARI)

TABULATED DATA

CTD/Rosette Cast Data

The time reported is the Coordinated Universal Time (UTC) of the first rosette bottle trip on the up cast. The rosette bottles tripped on the up cast are reported as cast 2, where cast 1 is considered to be the down CTD profile. The sample number reported is the cast number followed by a two-digit rosette bottle number. Bottom depths, determined acoustically, have been corrected using British Admiralty Tables (Carter, 1980) and are reported in meters. Weather conditions have been coded using WMO code 4501. Secchi depths are reported for most daylight stations.

Data values from discreet sampled CTD rosette were interpolated and are reported for standard depths. Interpolated or extrapolated standard level data are noted by the footnote “ISL” printed after the depth. Multiple bottles tripped at the same depth to provide water for ancillary programs are not used in the calculation of standard depth data. Density-related parameters have been calculated from the International Equation of State of Seawater 1980 (UNESCO, 1981b). Computed values of potential temperature, sigma-theta, specific volume anomaly (SVA), and dynamic height or geopotential anomaly are included with both observed and interpolated standard depth levels

On stations where primary productivity samples were drawn a footnote appears after each productivity depth sampled. The corresponding primary productivity data are reported in a separate section following the tabulated rosette cast data.

Primary Productivity Data

In addition to the normal hydrographic data that are reported in the rosette cast data section, the tabulated data include: the *in situ* light levels at which the samples were collected, the uptake from each of the replicate light bottles, uptake 1 and uptake 2 (which have been corrected for dark uptake by subtracting the dark value), the mean of the two uptake values and the dark uptake. The uptake values are totals for the incubation period. Also shown are the times of LAN, civil twilight, and the value of the mean uptake integrated from the surface to the deepest sample, assuming the shallowest value continues to the surface and that negative values (when dark uptake exceeds light uptake) are zero. The uptake data are reported to two significant digits (values <1.00) or one decimal (values >1.00). Incubation time, LAN, and civil twilight are given in local Pacific Standard Time (PST); to convert to UTC, add eight hours to the PST time. Incubation light intensities are listed in a footnote at the bottom of each page.

Macrozooplankton Data

Macrozooplankton biomass volumes are tabulated as total biomass volume ($cm^3/1000m^3$ strained) and as the total volume minus the volume of larger organisms under the heading “Small.” Tow times are given in local PST (+8) time.

FOOTNOTES

In addition to footnotes, special notations are used without footnotes because the meaning is always the same:

D: CTD salinity value listed in place of normal shipboard salinity analysis.

ISL: After a depth value indicates that this is an interpolated or extrapolated standard level.

U: Uncertain value. Values which are not used in interpolation because they seem to be in error without apparent reason.

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FIGURES

Cruise 1304

1. CalCOFI Cruise 1304 track and station positions.

2. Horizontal distribution of dynamic height anomaly (0 over 500m). In areas shallower than 500 m, the dynamic heights were extrapolated on the basis of the offshore deeper steric height as described in Reid and Mantyla (1976).

3. Horizontal distributions at 10 meters: A) chlorophyll-*a*; B) potential density; C) temperature; and D) salinity.

4. Horizontal distributions at 200 meters: A) dynamic height anomaly (200 over 500 m); B) potential density; C) temperature; and D) salinity.

5. Sections along CalCOFI line 90 (vertical exaggeration, 1000): A) potential density; B) temperature; C) salinity; D) silicate; E) nitrate; F) phosphate; G) chlorophyll-*a*; H) oxygen saturation; I) oxygen; J) nitrite; and K) phaeopigments.

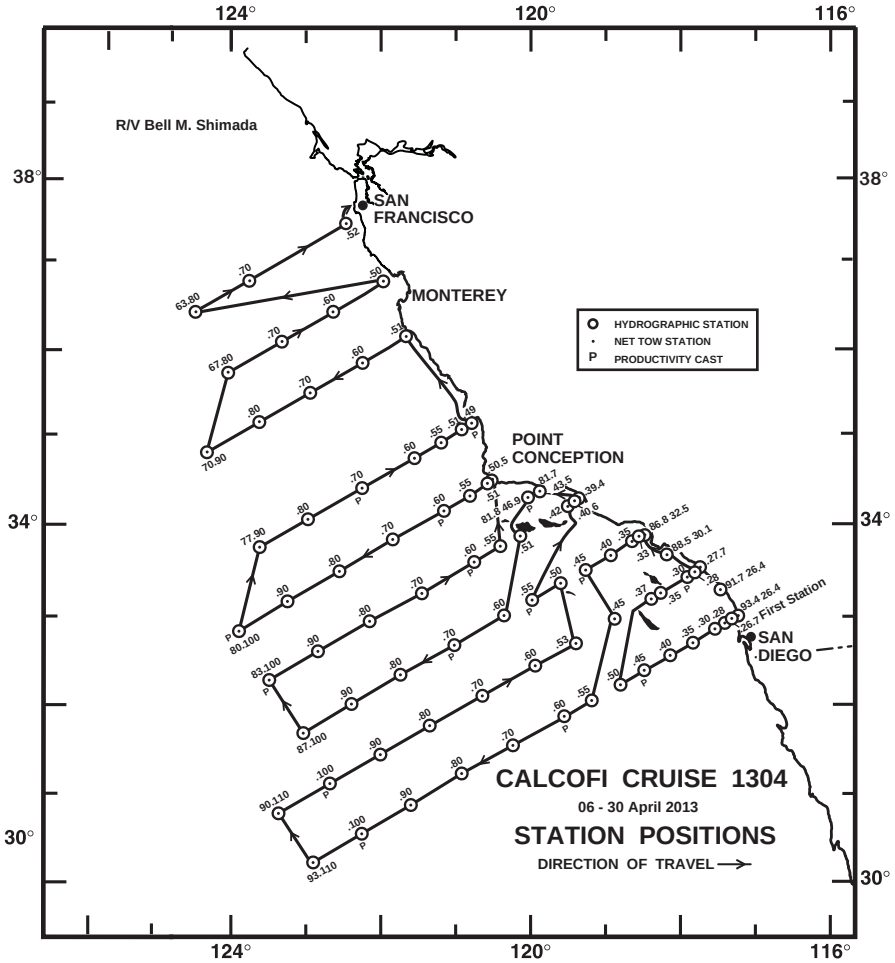

FIGURE 1

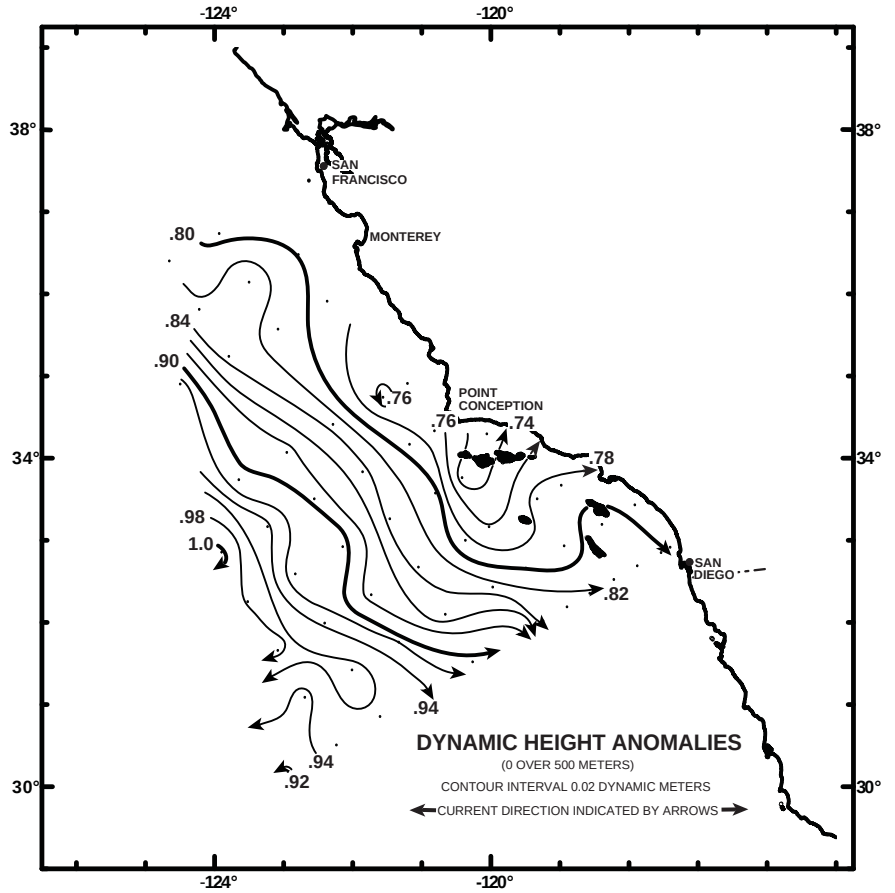

FIGURE 2

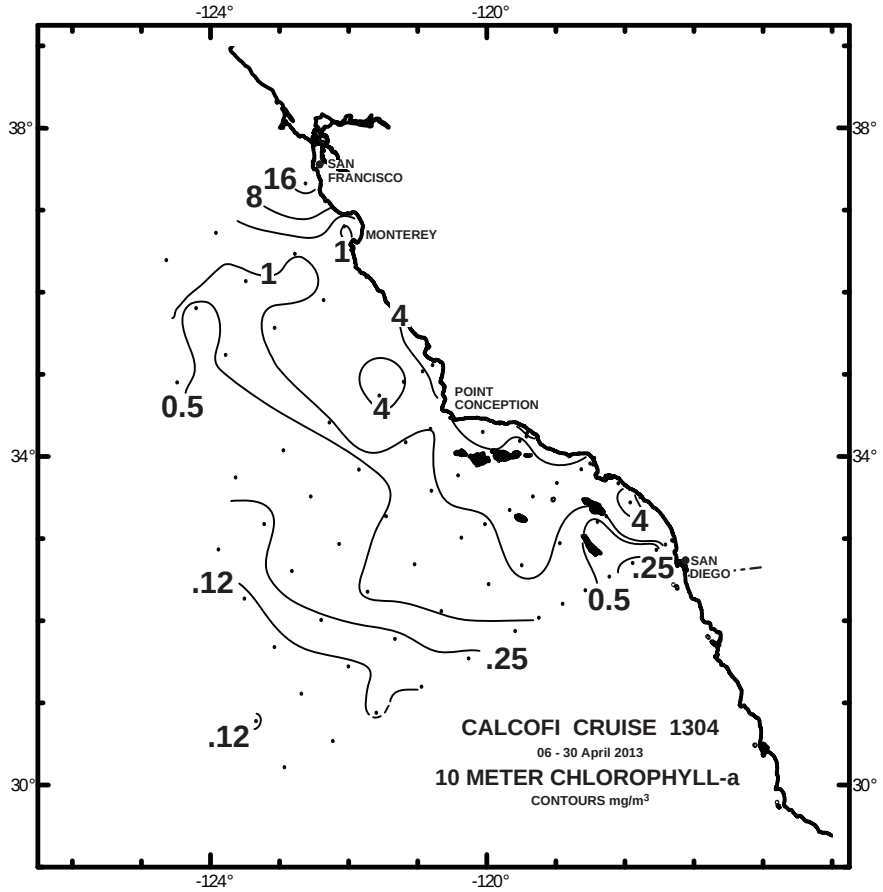

FIGURE 3A

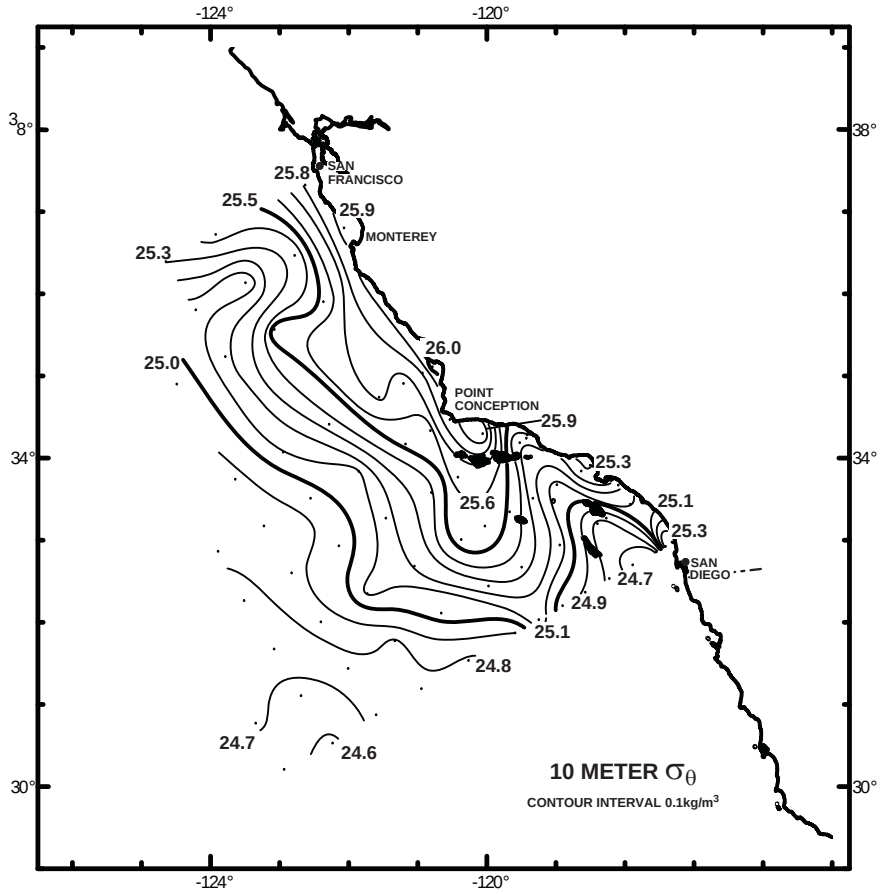

FIGURE 3B

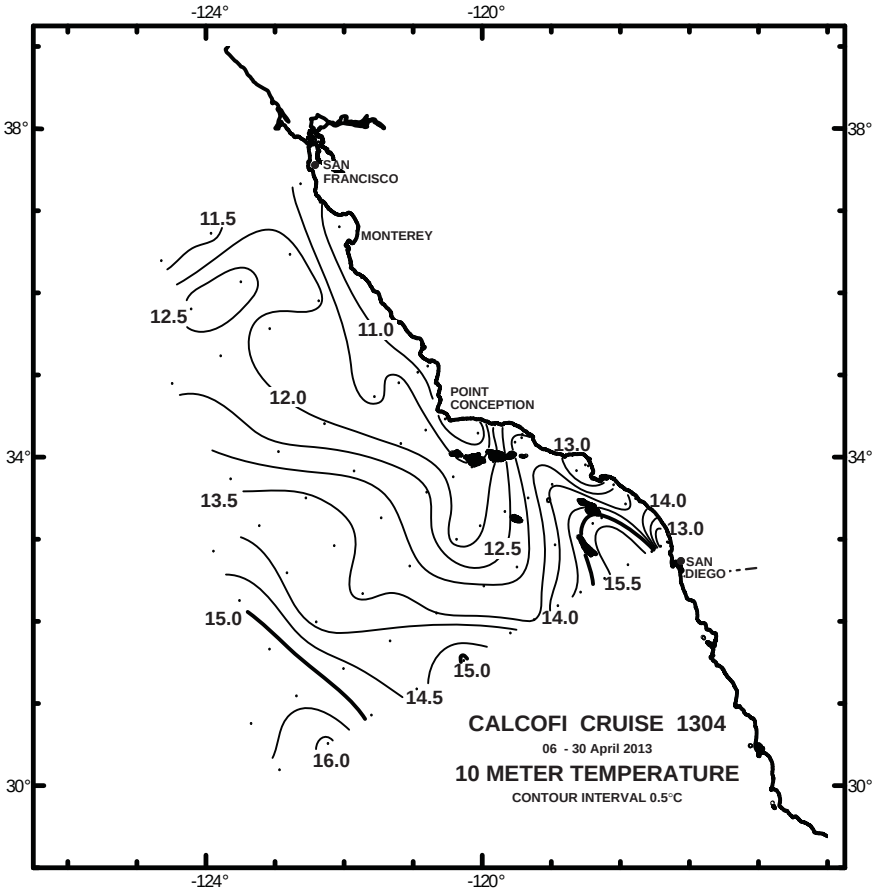

FIGURE 3C

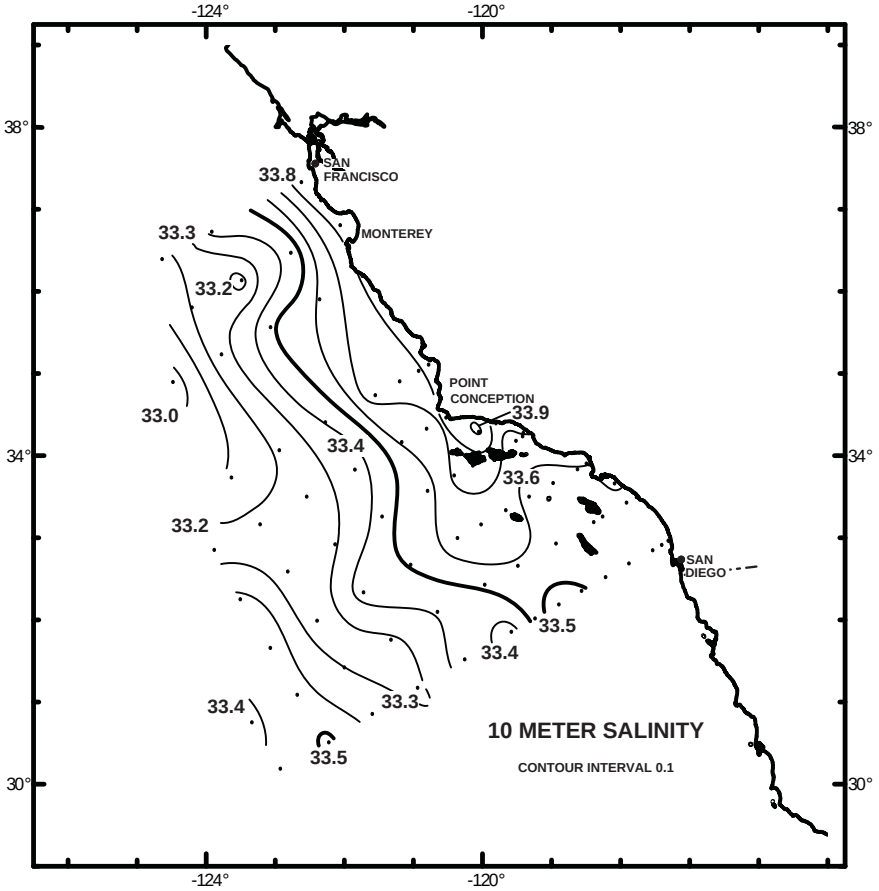

FIGURE 3D

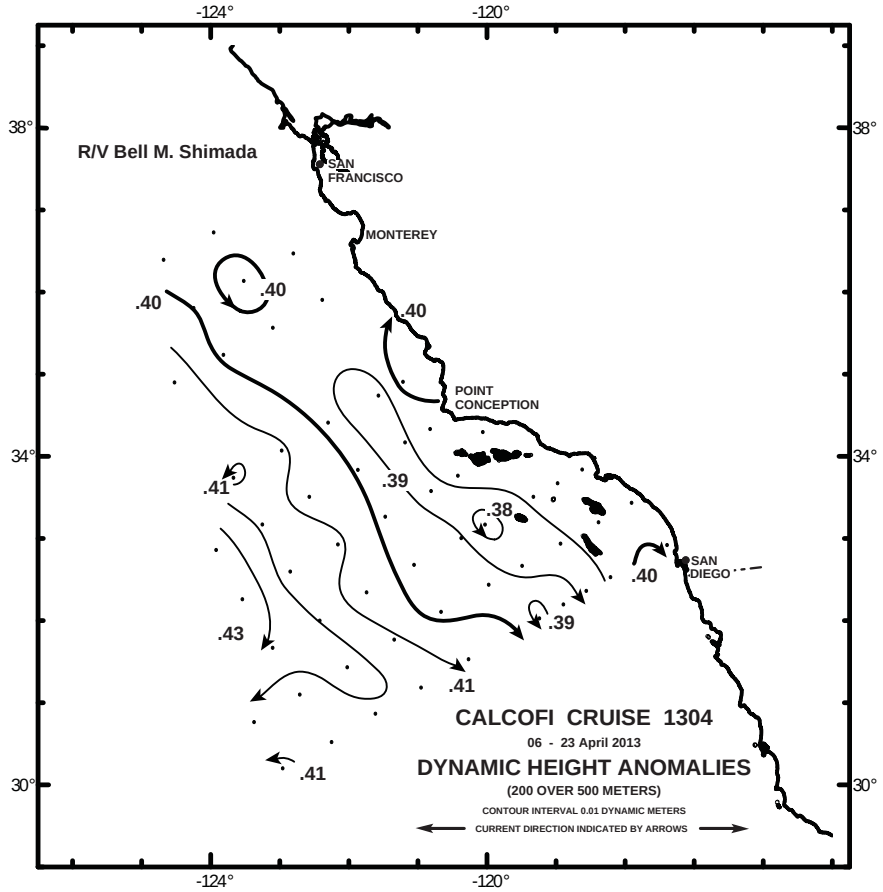

FIGURE 4A

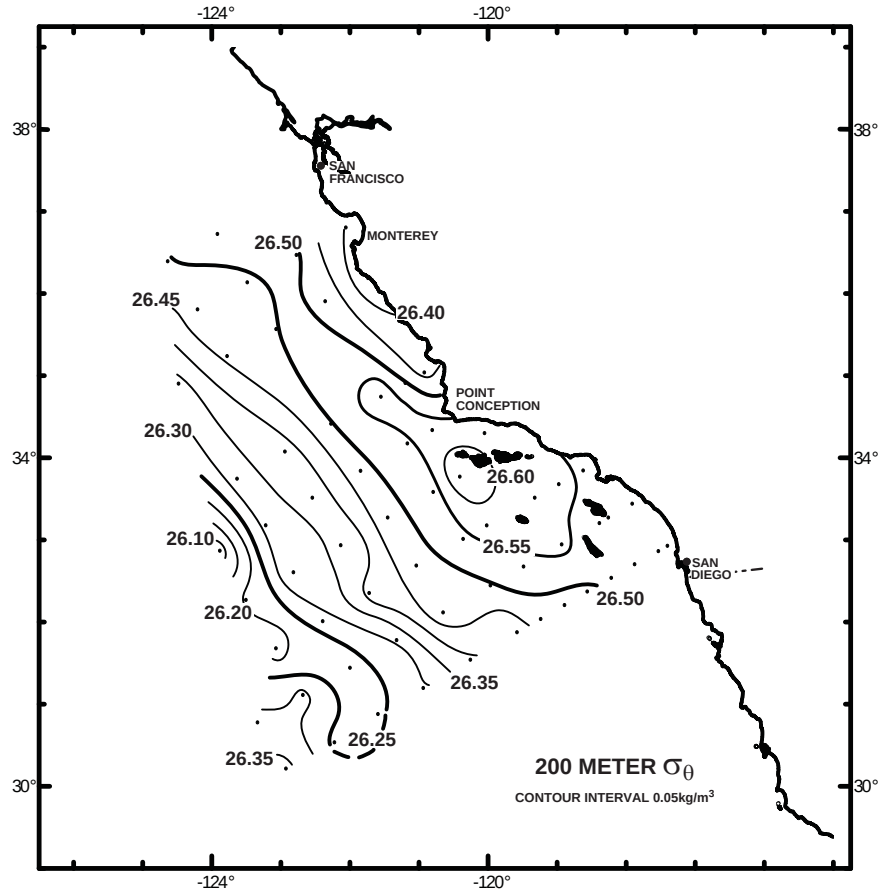

FIGURE 4B

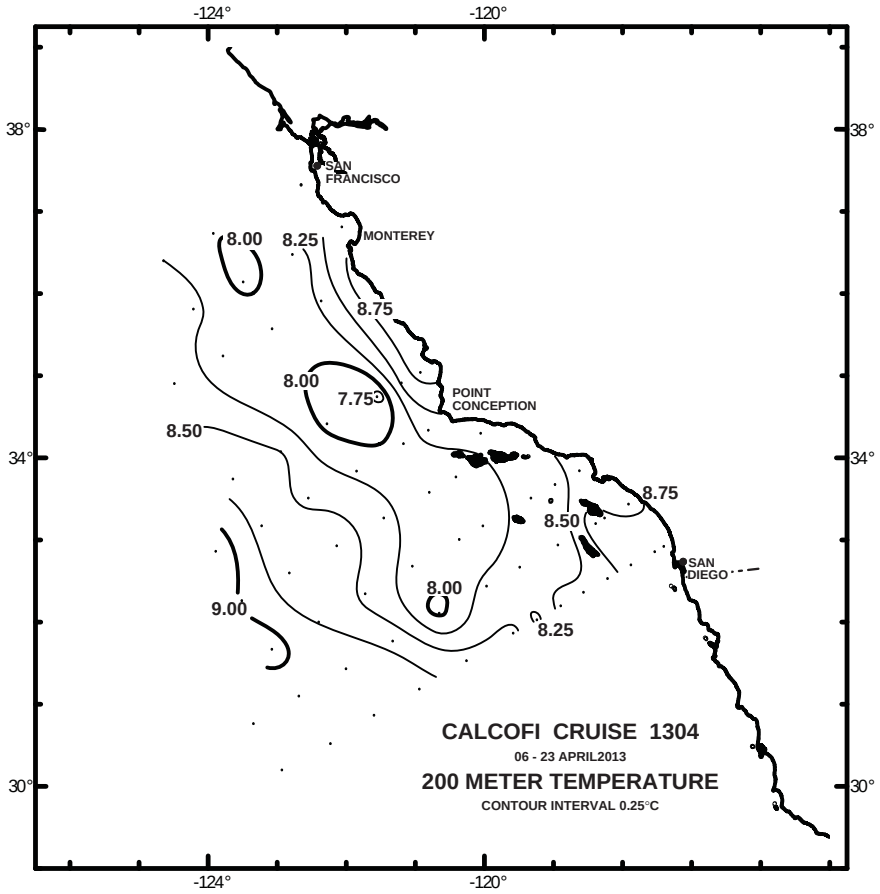

FIGURE 4C

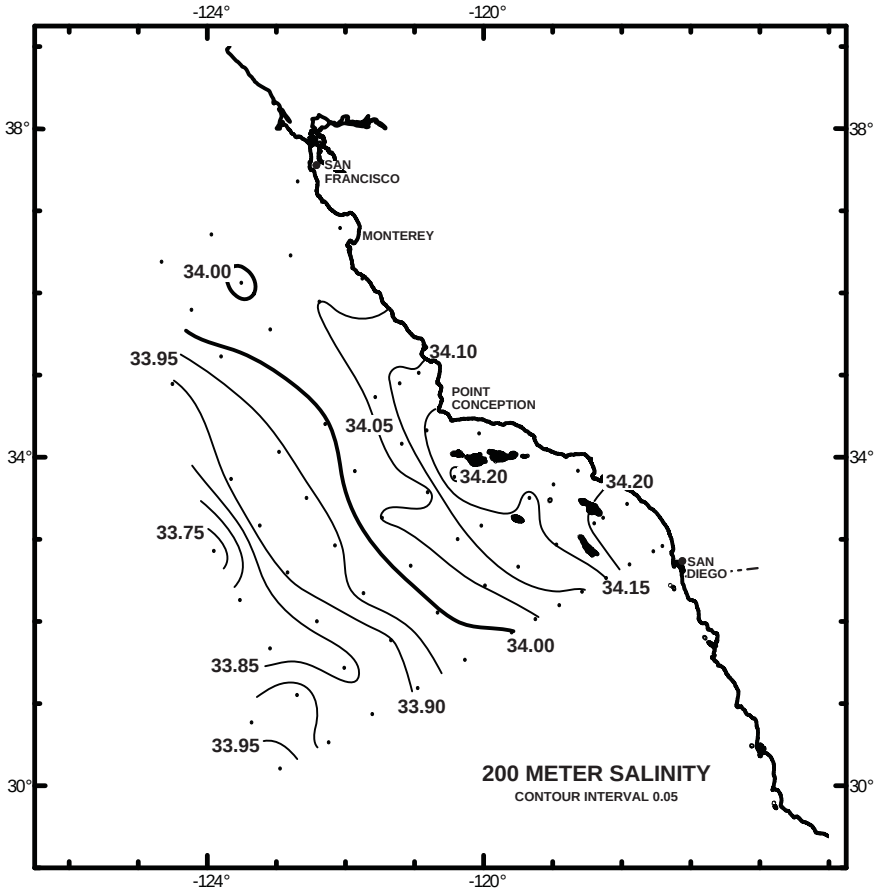

FIGURE 4D

CALCOFI CRUISE 1304

8 - 9, 10, 13 - 14 April 2013

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

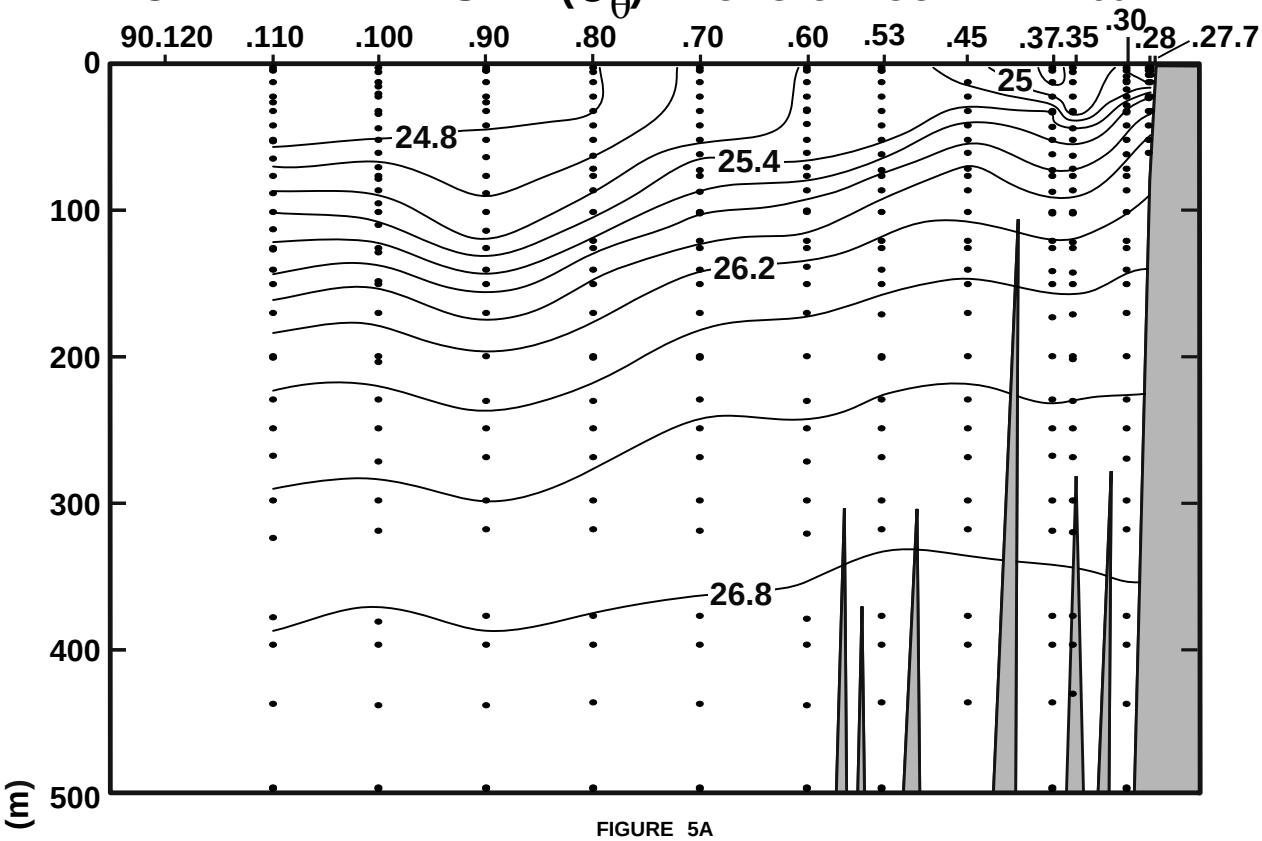

FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

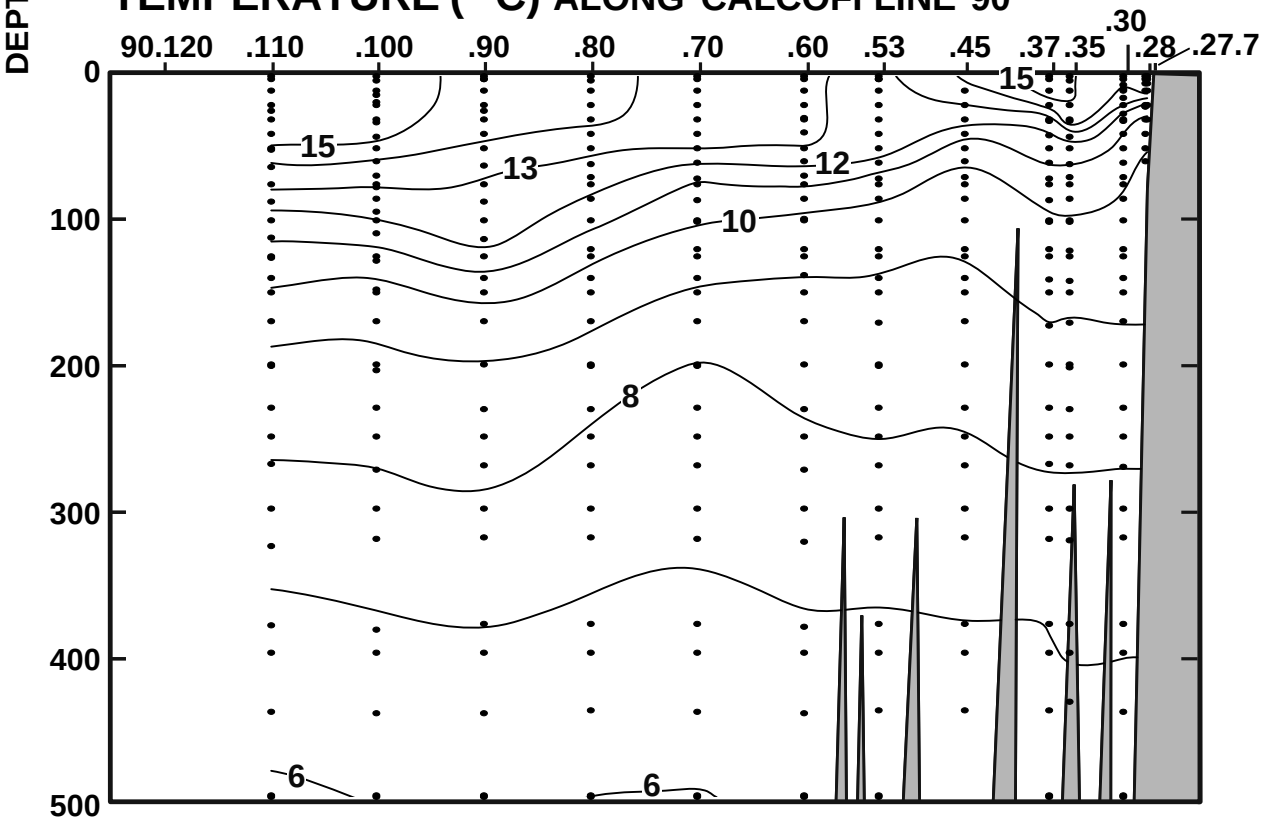

FIGURE 5B

CALCOFI CRUISE 1304

06 - 08, 10, 13 - 14 April 2013

SALINITY ALONG CALCOFI LINE 90

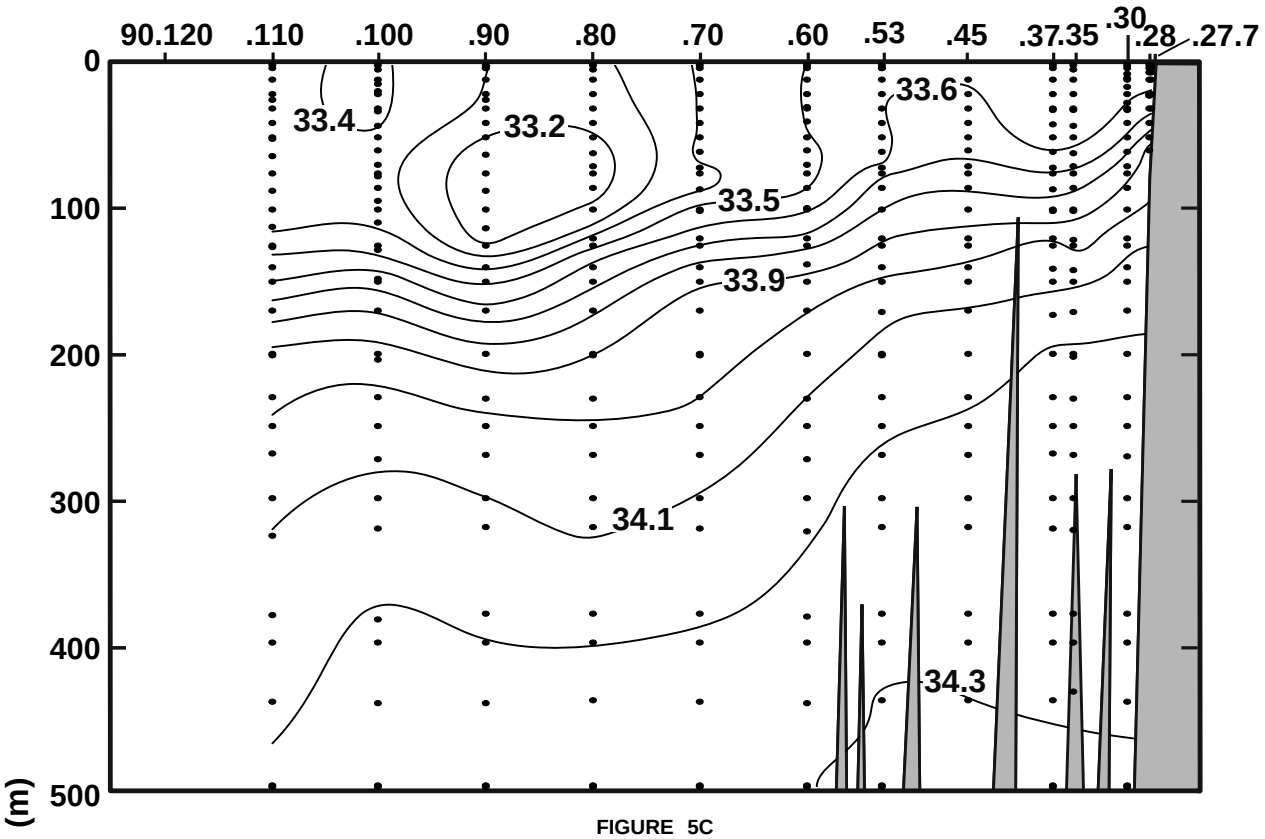

FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

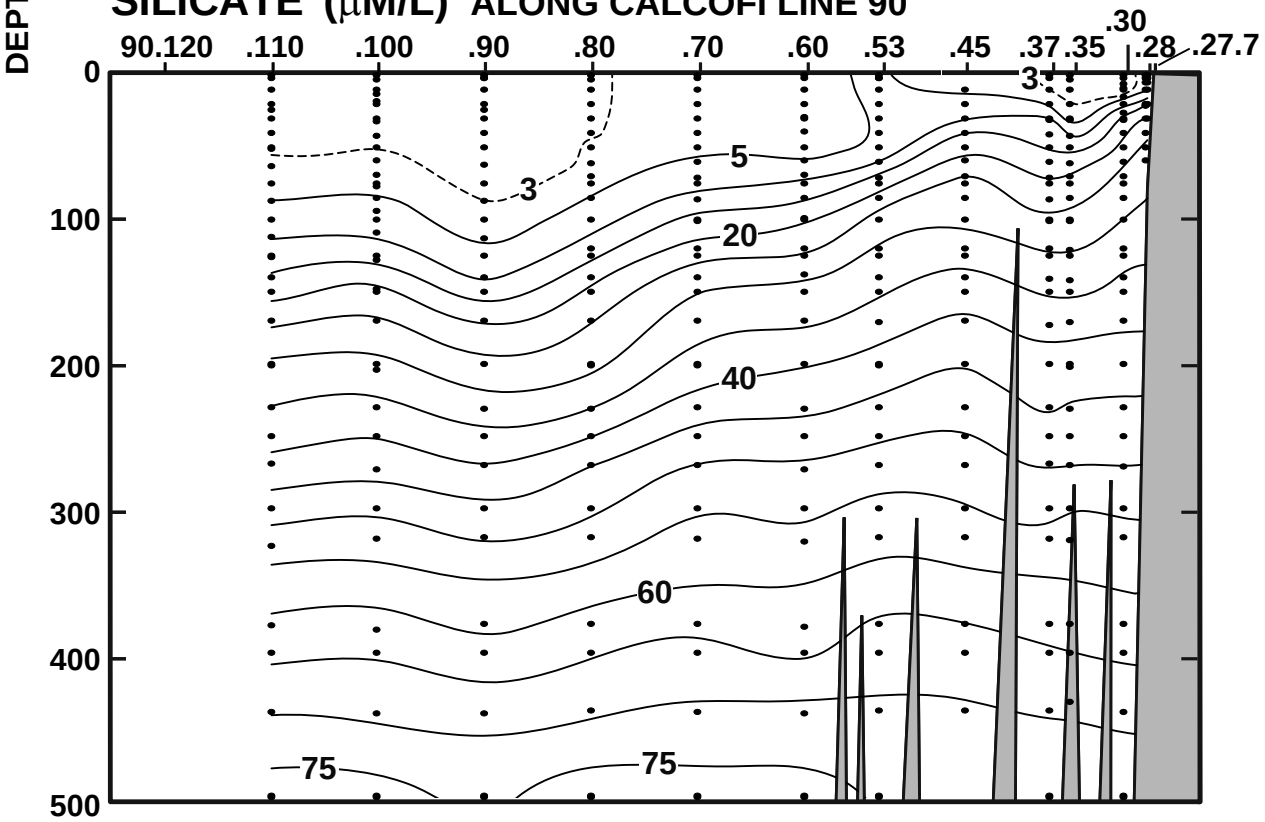

FIGURE 5D

CALCOFI CRUISE 1304

06 - 08, 10, 13-14 April 2013

NITRATE (μM/L) ALONG CALCOFI LINE 90

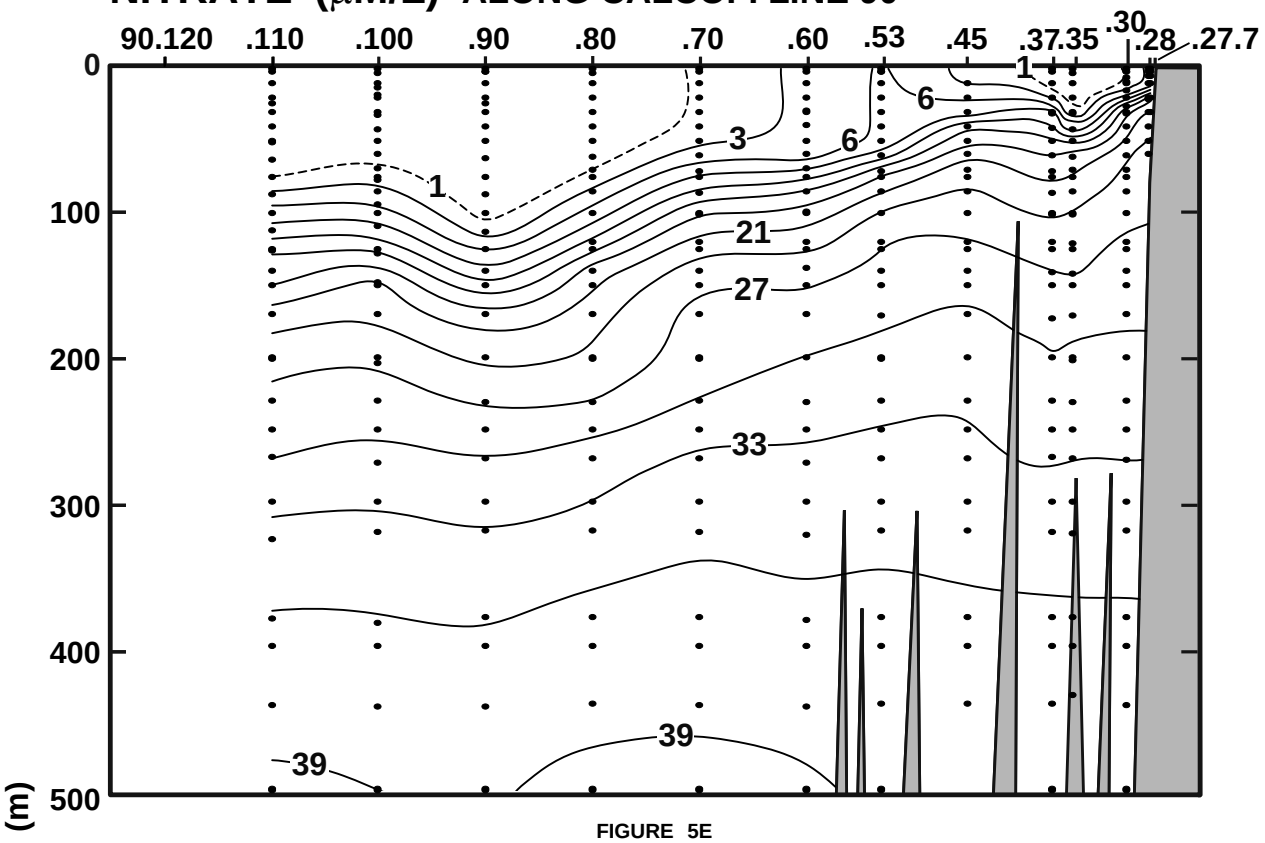

FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

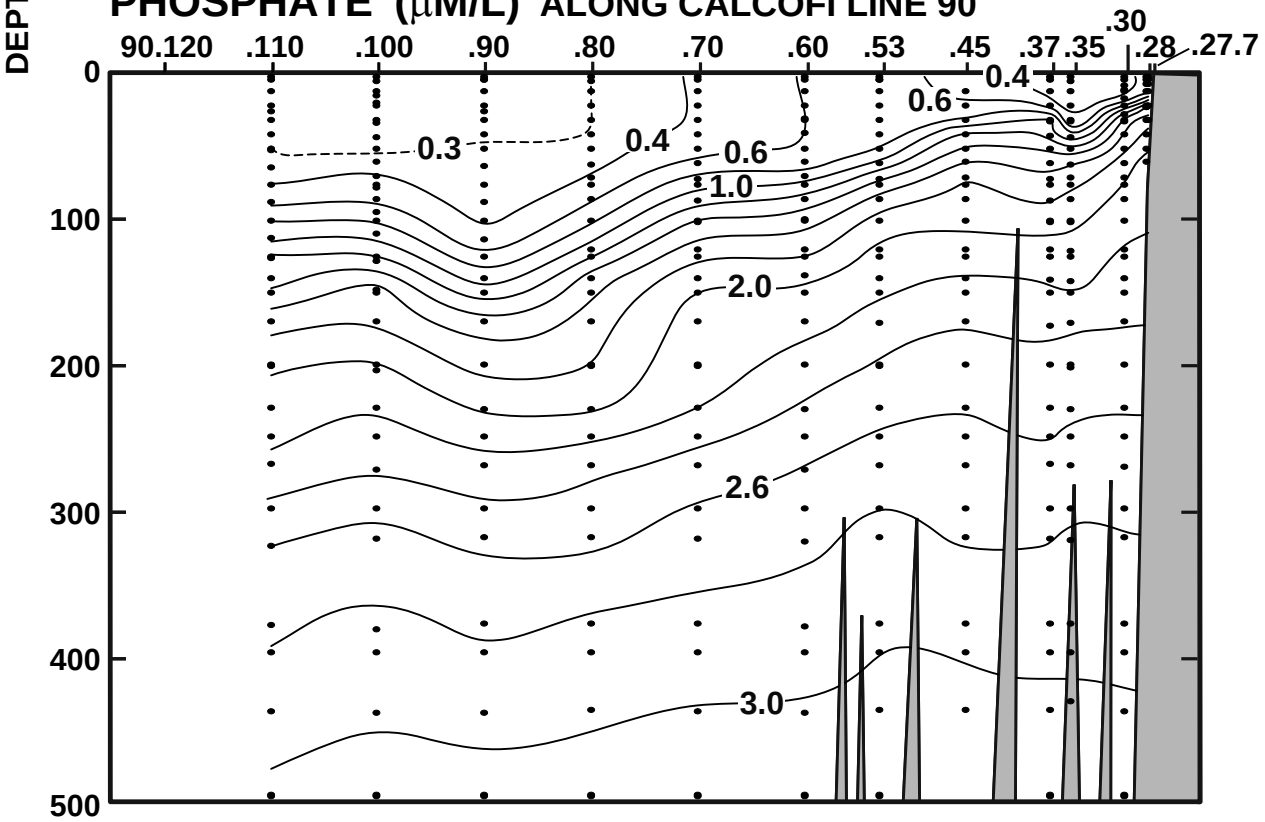

FIGURE 5F

CALCOFI CRUISE 1304

06 - 08, 10, 13 - 14 April 2003

CHLOROPHYLL-a (μg/L) ALONG CALCOFI LINE 90

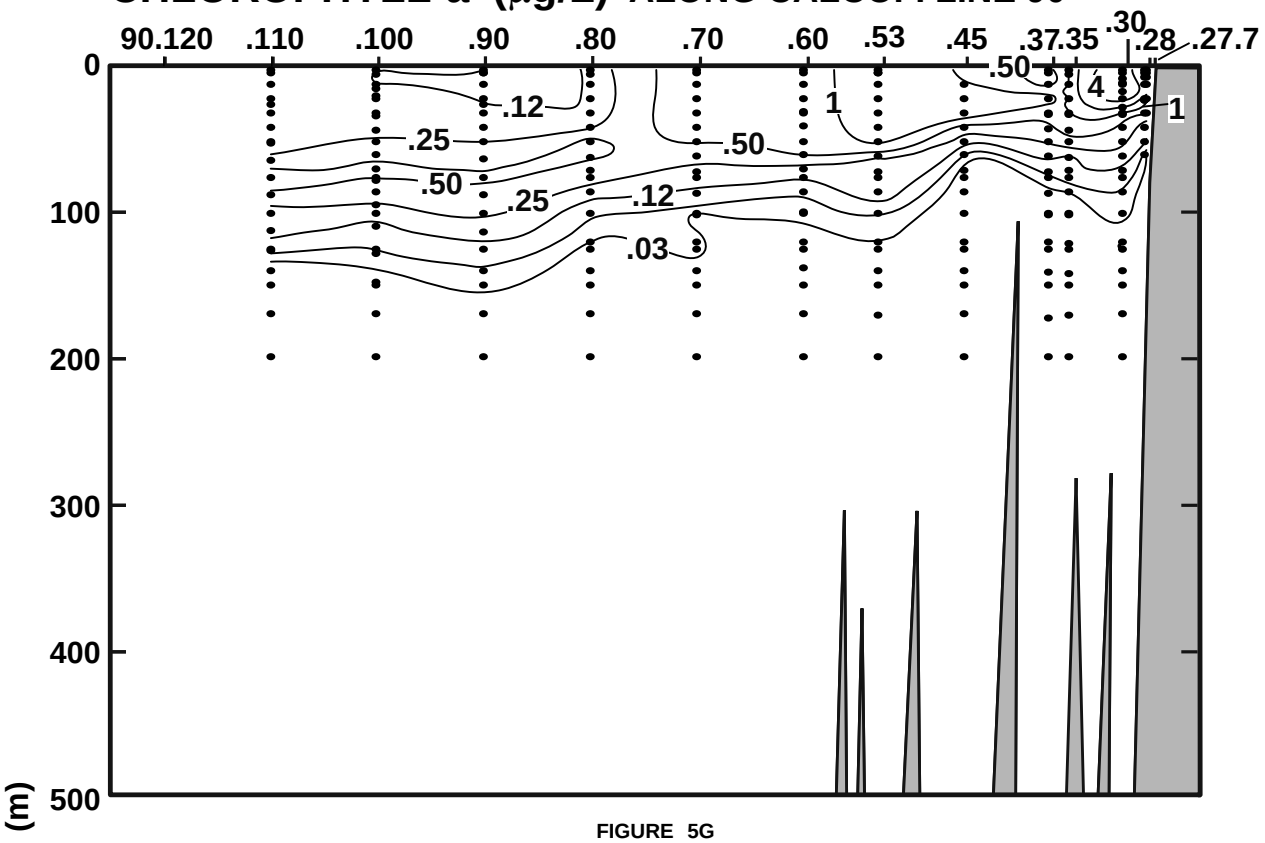

FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

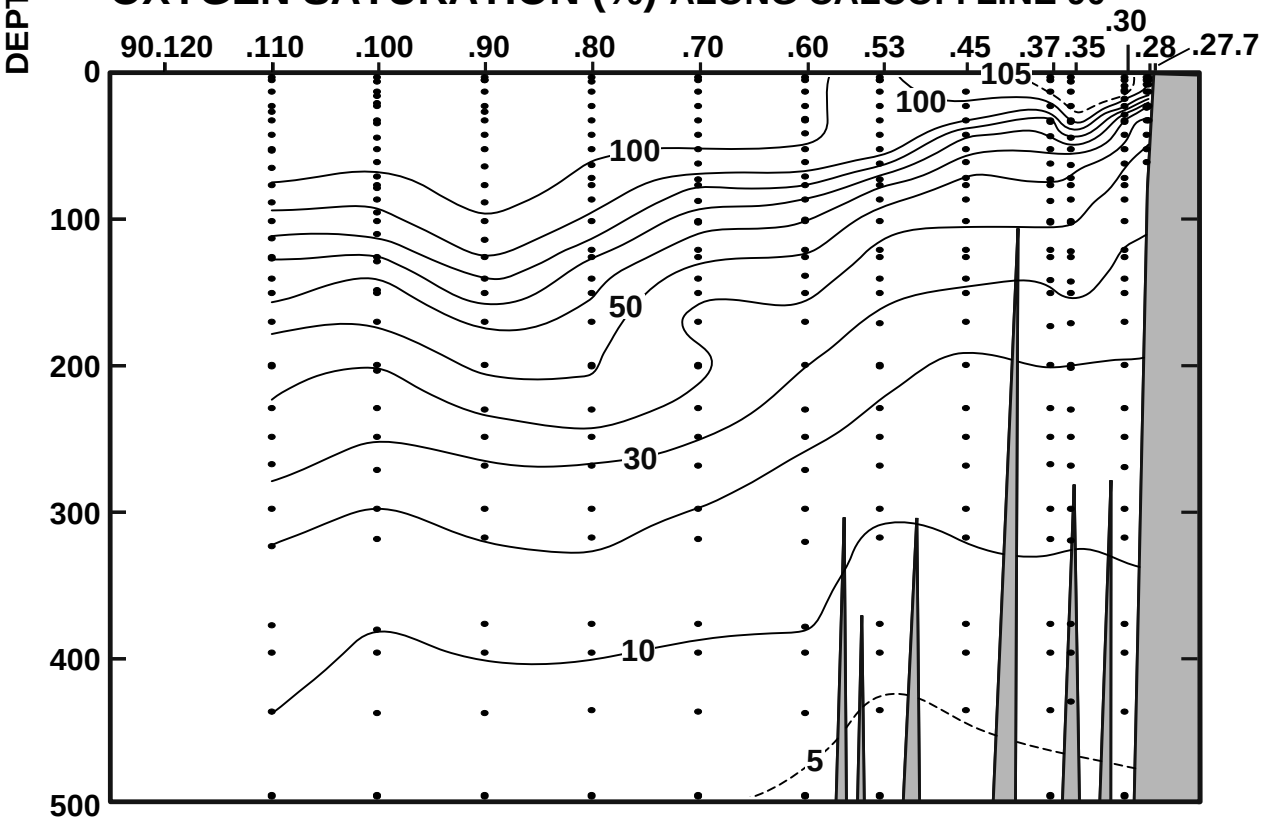

FIGURE 5H

CALCOFI CRUISE 1304

8 - 9, 10, 13 - 14 April 2013

OXYGEN (mL/L) ALONG CALCOFI LINE 90

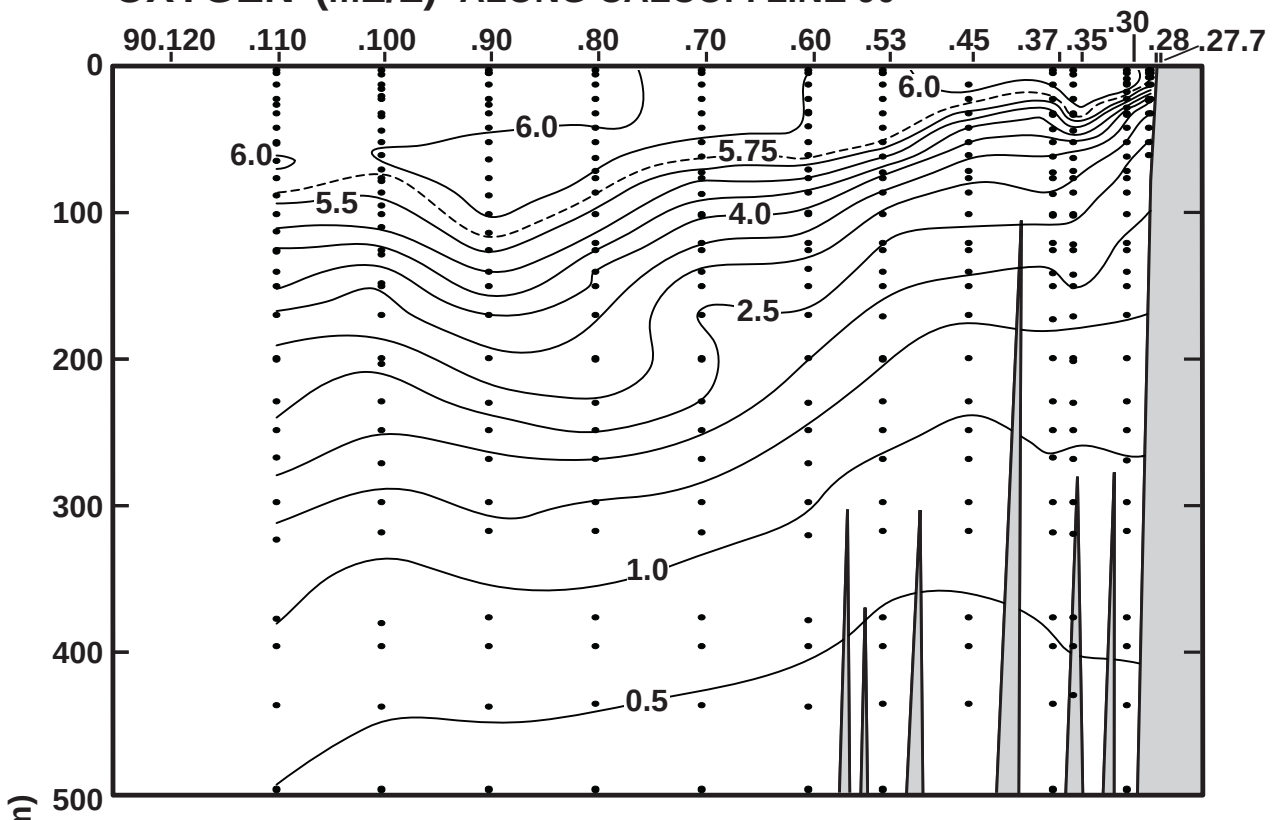

FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

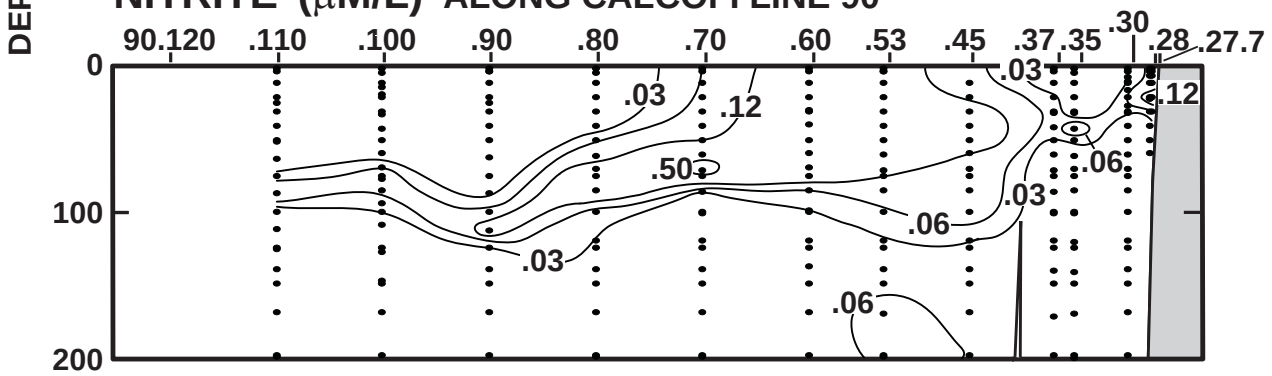

FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

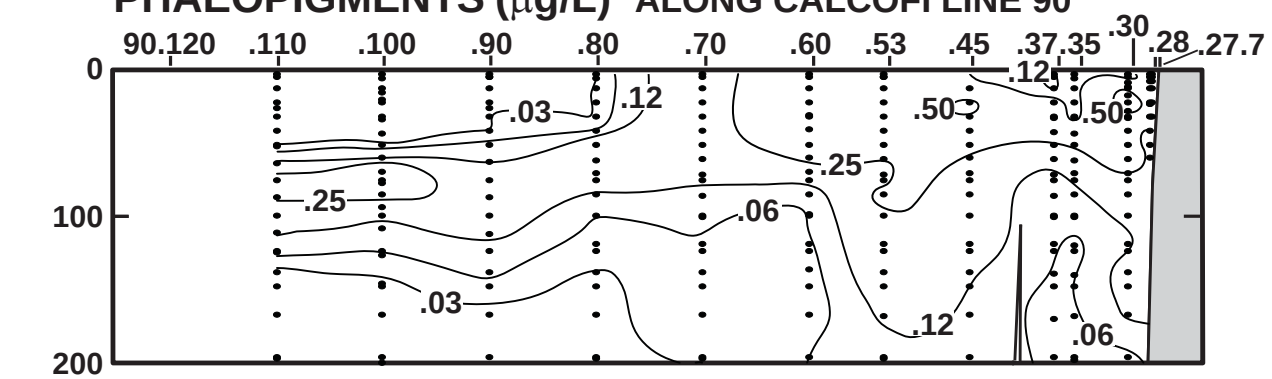

FIGURE 5K

PERSONNEL

CalCOFI Cruise 1304

SHIP'S CAPTAIN

Sirois, Scott, FSV Bell M. Shimada

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Leg)
Hays, Amy (Chief Scientist)	Fishery Biologist, NMFS	1-2
Blum, Marguerite	Oceanographer, MBARI	2
Breese, Dawn	Bird Observer, FIAER	1
Debich, Amanda	Marine Mammal Acoustician, MPL	1-2
Dovel, Shonna	Staff Research Associate, SIO	1
Engel, Eric	Volunteer	1
Faber, David	Staff Research Associate, SIO	1-2
Jiorle, Ralph	Staff Research Associate, SIO	1
Kaminski, Marya	Volunteer	1
Manion, Sue	Fishery Biologist, NMFS	1-2
Renfree, Josiah	Fishery Acoustician	1-2
Rodgers-Wolgast, Jennifer	Staff Research Associate, SIO	1-2
Whitaker, Katherine	Marine Mammal Observer, MPL	1-2
Wilkinson, James	Staff Research Associate, SIO	1
Wolgast, David	Staff Research Associate, SIO	1

San Diego to Avila Beach, California, 6 - 23 April 2013
Avila Beach to San Francisco, California, 23 - 30 April 2013

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 63.3 52.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 18.6 N	122 37.2 W	30/04/2013	0127	UTC	91 m	330 17 kn	320 05 05	1	1011.7 mb	12.9 C	11.4 C		4/8	CS	109

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.47	11.47	33.869	25.810	217.8	0.000	7.76	337.8	125.9						22.06	1.64	0	
2	11.47	11.47	33.869	25.810	217.8	0.004	7.76	337.8	125.9						22.06	1.64	2	09
10	11.46	11.45	33.871 D	25.815	217.6	0.022	7.73	D336.3	D125.3						22.48	1.96	10	08
20	11.28	11.28	33.875 D	25.850	214.5	0.044	7.52	327.2	121.4						21.95	1.75	20	07
30	10.15	10.14	33.868 D	26.045	196.1	0.064	7.58	329.7	119.4						22.98	1.79	30	06
40	9.23	9.22	33.911 D	26.230	178.7	0.083	3.91	D170.2	D 60.4						2.58	0.78	40	05
49	8.64	8.63	34.004 D	26.398	163.0	0.099	2.53	110.0	38.6						1.71	0.80	49	04
50 ISL	8.62 D	8.61	34.007 D	26.403	162.5	0.100	2.41	D104.9	D 36.8						1.61	0.81	50	
61	8.40	8.39	34.031 D	26.454	157.8	0.118	1.94	84.4	29.4						0.50	0.86	62	03
70	8.37	8.36	34.034 D	26.462	157.3	0.132	1.83	79.4	27.7						0.45	1.07	71	02
75 ISL	8.36 D	8.36	34.035 D	26.464	157.2	0.140	1.85	D 80.6	D 28.1						0.46	1.03	76	
80	8.37	8.36	34.031	26.461	157.6	0.147	1.78	77.6	27.1						0.48	0.99	81	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 63.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 42.5 N	123 55.0 W	29/04/2013	0143	UTC	3907 m	330 23 kn	320 08 08	1	1016.7 mb	13.0 C	11.8 C		3/8	CS	106

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.25	11.25	33.431	25.510	246.2	0.000	6.61	287.7	106.4						1.75	0.51	0	
2	11.25	11.25	33.431	25.510	246.3	0.005	6.61	287.7	106.4						1.75	0.51	2	12
10	11.25	11.25	33.426 D	25.506	246.9	0.025	6.60	287.4	106.3						1.74	0.51	10	11
20	11.26	11.25	33.426 D	25.505	247.2	0.050	6.60	287.4	106.3						1.73	0.49	20	10
30	11.24	11.24	33.425 D	25.508	247.3	0.075	6.58	286.6	105.9						1.80	0.53	30	09
50	10.48	10.48	33.557 D	25.745	225.1	0.122	5.55	241.4	87.9						0.44	0.44	50	08
74	9.82	9.81	33.670 D	25.946	206.5	0.175	4.27	185.7	66.7						0.17	0.27	75	07
75 ISL	9.65 D	9.65	33.694 D	25.993	202.1	0.177	3.89	D169.4	D 60.6						0.17	0.27	76	
99	9.12	9.11	33.800 D	26.164	186.3	0.224	2.86	124.4	44.0						0.04	0.24	100	06
100 ISL	9.07 D	9.06	33.827 D	26.193	183.6	0.225	2.68	D116.6	D 41.2						0.04	0.23	101	
125 ISL	8.82 D	8.81	33.912 D	26.299	174.0	0.270	2.40	D104.3	D 36.7						0.03	0.20	126	
150	8.41	8.40	33.947 D	26.390	165.7	0.313	2.56	111.5	38.9						0.03	0.16	151	05
199	8.05	8.03	34.035 D	26.515	154.7	0.392	1.95	84.9	29.4						0.01	0.13	201	04
200 ISL	8.01 D	7.99	34.037 D	26.522	154.1	0.394	1.93	D 84.1	D 29.1						0.01	0.13	202	
250 ISL	7.61 D	7.59	34.094 D	26.627	144.9	0.469	1.39	D 60.3	D 20.6								252	
300	7.29	7.26	34.132 D	26.703	138.4	0.541	1.05	D 46.6	D 15.9								302	03
400	6.26	6.22	34.149 D	26.856	124.7	0.673	0.75	32.5	10.8								403	02
500 ISL	5.82 D	5.77	34.229 D	26.977	114.3	0.794	0.40	D 17.6	D 5.8								504	
517	5.63	5.59	34.235	27.004	111.7	0.808	0.35	15.4	5.0								522	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 63.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 22.5 N	124 38.2 W	28/04/2013	1916	UTC	4178 m	350 22 kn	340 06 07	1	1022.2 mb	12.8 C	11.3 C	09 m	4/8	SC	105

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.20	11.20	33.159	25.307	265.5	0.000	6.76	294.4	108.5						3.36	0.86	0	
2	11.20	11.20	33.159	25.307	265.6	0.005	6.76	294.4	108.5						3.36	0.86	2	12
9	11.21	11.21	33.161 D	25.307	265.8	0.024	6.77	294.9	108.7						3.55	0.89	9	11
10 ISL	11.20 D	11.20	33.161 D	25.309	265.7	0.027	6.73	D293.3	D108.1						3.54	0.89	10	
20	11.18	11.17	33.166 D	25.318	265.1	0.053	6.77	295.0	108.7						3.49	0.88	20	10
30	11.18	11.18	33.170 D	25.320	265.1	0.080	6.73	293.1	108.0						3.69	0.89	30	09
50	10.48	10.48	33.197 D	25.465	251.7	0.132	5.89	256.3	93.1						0.40	0.46	50	08
75	9.73	9.73	33.493 D	25.823	218.2	0.192	4.67	203.4	72.8						0.08	0.28	76	07
100	9.60	9.59	33.671 D	25.985	203.4	0.245	3.56	155.1	55.4						0.07	0.26	101	06
125 ISL	9.15 D	9.13	33.836 D	26.187	184.6	0.294	2.61	D113.8	D 40.3						0.06	0.27	126	
150 ISL	8.88 D	8.87	33.954 D	26.323	172.3	0.339	2.05	D 89.4	D 31.5						0.04	0.28	151	
151	8.87	8.86	33.955 D	26.325	172.0	0.340	2.08	90.5	31.9						0.04	0.28	152	05
200 ISL	8.25 D	8.23	34.046 D	26.493	156.9	0.422	1.75	D 76.0	D 26.4						0.03	0.21	202	
201	8.24	8.22	34.047 D	26.496	156.6	0.423	1.80	78.3	27.2						0.03	0.21	203	04
250 ISL	7.64 D	7.62	34.065 D	26.599	147.5	0.498	1.56	D 67.8	D 23.2								252	
300	6.66	6.63	34.034 D	26.712	137.1	0.570	1.32	57.3	19.2								302	03
400 ISL	6.14 D	6.10	34.151 D	26.873	122.9	0.701	0.70	D 30.5	D 10.1								403	
401	6.13	6.10	34.151 D	26.874	122.9	0.702	0.72	31.3	10.4								404	02
500 ISL	5.44 D	5.39	34.196 D	26.997	111.9	0.820	0.45	D 19.7	D 6.4								504	
516	5.32	5.28	34.205	27.018	110.0	0.831	0.40	17.2	5.6								521	01

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 66.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 47.2 N	122 3.5 W	27/04/2013	1710	UTC	230 m	350 03 kn	330 01 05	4	1024.3 mb	11.0 C	10.9 C	15 m	0/8		101

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	10.81	10.81	33.828	25.897	209.5	0.000	5.36	233.3	85.7						0.66	0.38	0	
2	10.81	10.81	33.828	25.897	209.6	0.004	5.36	233.3	85.7						0.66	0.38	2	12
4	10.84	10.84	33.829 D	25.893	209.9	0.008	5.37	233.8	85.9						0.54	0.36	4	11
10	10.53	10.53	33.833 D	25.950	204.7	0.021	5.21	226.7	82.8						0.65	0.44	10	10
20	9.94	9.94	33.845 D	26.061	194.4	0.041	4.63	201.5	72.6						1.03	0.68	20	09
29	9.58	9.58	33.868 D	26.139	187.1	0.058	4.06	176.7	63.2						1.32	0.74	29	08
30 ISL	9.58 D	9.57	33.870 D	26.141	186.9	0.060	4.06	D176.8	D 63.2						1.32	0.74	30	
40	9.55	9.55	33.877 D	26.151	186.2	0.079	4.03	175.5	62.7						1.35	0.67	40	07
50 ISL	9.49 D	9.48	33.894 D	26.175	184.2	0.098	3.94	D171.5	D 61.2						1.46	0.66	50	
59	9.40	9.39	33.931 D	26.219	180.2	0.114	3.90	169.5	60.4						1.56	0.65	59	06
75 ISL	9.06 D	9.05	33.958 D	26.296	173.2	0.143	3.50	D152.3	D 53.9						0.63	0.43	76	
80	8.92	8.91	33.963 D	26.321	170.9	0.151	2.98	129.7	45.7						0.34	0.36	81	05
100 ISL	8.88 D	8.86	33.991 D	26.352	168.5	0.186	2.97	D129.3	D 45.6						0.39	0.42	101	
102	8.87	8.86	33.992 D	26.354	168.3	0.189	2.95	128.3	45.2						0.39	0.43	103	04
125 ISL	8.80 D	8.79	33.993 D	26.365	167.7	0.228	2.56	D111.4	D 39.2						0.38	0.46	126	
150 ISL	8.78 D	8.76	34.004 D	26.378	167.0	0.270	2.76	D120.2	D 42.3						0.37	0.50	151	
151	8.78	8.77	34.003 D	26.377	167.1	0.272	2.75	119.6	42.1						0.37	0.50	152	03
199	8.67	8.65	34.004 D	26.398	166.1	0.353	2.24	97.4	34.2						0.17	0.44	201	02
200 ISL	8.65 D	8.63	34.007 D	26.402	165.7	0.354	2.26	D 98.4	D 34.5						0.17	0.41	202	
220	8.48	8.46	34.027	26.445	162.0	0.384	2.00	86.8	30.3								222	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 66.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 27.1 N	122 46.4 W	27/04/2013	0207 UTC	3967 m	330 18 kn	330 02 05	2	1024.1 mb	12.3 C	11.0 C	11 m	7/8	SC	097

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.36	12.36	33.408	25.285	267.7	0.000	6.46	281.4	106.5						1.01	0.32	0	
2	12.36	12.36	33.408	25.285	267.7	0.005	6.46	281.4	106.5						1.01	0.32	2	12
4	12.35	12.35	33.410 D	25.288	267.5	0.011	6.44	280.6	106.2						0.98	0.29	4	11
10	12.24	12.24	33.413 D	25.312	265.4	0.027	6.44	280.6	105.9						0.98	0.37	10	10
19	11.47	11.46	33.473 D	25.504	247.3	0.050	6.25	272.1	101.1						1.44	0.67	19	09
20 ISL	11.45 D	11.45	33.477 D	25.510	246.8	0.053	6.19	D269.7	D100.2						1.42	0.67	20	
30	11.23	11.23	33.494 D	25.563	242.0	0.077	6.11	266.1	98.4						1.30	0.61	30	08
40	11.08	11.08	33.522 D	25.612	237.6	0.102	5.97	260.1	95.9						0.96	0.55	40	07
50 ISL	10.85 D	10.85	33.572 D	25.692	230.2	0.125	5.81	D253.0 D	92.8						0.65	0.43	50	
60	10.53	10.52	33.594 D	25.767	223.3	0.148	5.61	244.0	88.9						0.33	0.30	61	06
75 ISL	10.37 D	10.36	33.610 D	25.807	219.8	0.182	5.35	D232.9 D	84.6						0.24	0.27	76	
79	10.27	10.26	33.617 D	25.830	217.8	0.190	5.18	225.4	81.7						0.22	0.26	80	05
99	9.78	9.77	33.820 D	26.071	195.2	0.232	4.38	190.6	68.4						0.44	0.38	100	04
100 ISL	9.79 D	9.77	33.819 D	26.070	195.4	0.234	4.31	D187.6 D	67.4						0.43	0.38	101	
125 ISL	9.18 D	9.17	33.899 D	26.232	180.4	0.282	3.29	D143.3 D	50.8						0.30	0.32	126	
149	8.95	8.93	33.940 D	26.302	174.2	0.324	2.91	126.5	44.6						0.17	0.26	150	03
150 ISL	8.93 D	8.91	33.941 D	26.305	173.9	0.326	2.88	D125.2 D	44.2						0.17	0.26	151	
199	8.10	8.08	34.035 D	26.507	155.5	0.408	1.94	D 84.6 D	29.3						0.01	0.11	201	02
200 ISL	8.10 D	8.08	34.040 D	26.511	155.1	0.409	1.92	D 83.6 D	28.9						0.01	0.11	202	
250 ISL	7.57 D	7.55	34.091 D	26.629	144.6	0.485	1.40	D 60.9 D	20.9								252	
300 ISL	7.03 D	7.00	34.107 D	26.718	136.7	0.556	1.15	D 50.2 D	17.0								302	
400 ISL	6.38 D	6.34	34.181 D	26.867	123.8	0.687	0.62	D 27.0 D	9.0								403	
500 ISL	5.72 D	5.68	34.250 D	27.006	111.5	0.806	0.34	D 14.7 D	4.8								504	
514	5.67	5.63	34.249	27.011	111.1	0.825	0.34	D 14.8 D	4.8								519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 66.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 7.1 N	123 29.1 W	26/04/2013	2021 UTC	3588 m	350 09 kn	300 02 06	1	1025.4 mb	14.0 C	12.6 C	19 m	5/8	SC	096

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.40	13.40	33.173	24.898	304.5	0.000	6.25	D272.1	D105.1						0.54	0.10	0	
2	13.40	13.40	33.173	24.898	304.5	0.006	6.25	D272.1	D105.1						0.54	0.10	2	12
5	13.40	13.40	33.172 D	24.899	304.5	0.015	6.24	D271.7	D104.9						0.45	0.07	5	11
10	12.94	12.94	33.182 D	24.997	295.3	0.031	6.25	D272.3	D104.1								10	10
19	12.23	12.23	33.199 D	25.149	281.1	0.056	6.31	D274.9	D103.6						0.64	0.13	19	09
20 ISL	12.20 D	12.19	33.222 D	25.173	278.9	0.059	6.31	D274.8	D103.5						0.65	0.14	20	
30	11.99	11.99	33.348 D	25.310	266.1	0.087	6.22	D270.8	D101.6						0.77	0.22	30	08
40	11.80	11.80	33.382 D	25.372	260.5	0.113	6.17	268.7	100.5						0.63	0.20	40	07
50 ISL	11.82 D	11.81	33.456 D	25.427	255.5	0.139	6.09	D265.2 D	99.3						0.52	0.24	50	
60	11.73	11.73	33.497 D	25.475	251.2	0.165	6.03	262.4	98.1						0.41	0.28	61	06
75 ISL	11.52 D	11.51	33.563 D	25.567	242.9	0.202	5.97	D260.2 D	96.8						0.31	0.30	76	
80	11.11	11.10	33.526 D	25.612	238.6	0.214	5.74	250.0	92.2						0.28	0.31	81	05
100	9.35	9.34	33.560 D	25.939	207.7	0.259	3.83	166.7	59.2						0.05	0.17	101	04
125 ISL	9.19 D	9.18	33.757 D	26.119	191.2	0.310	3.12	D135.7 D	48.1						0.03	0.17	126	
150	8.78	8.76	33.864 D	26.269	177.3	0.356	2.85	124.0	43.6						0.02	0.16	151	03
200	7.94	7.92	33.979 D	26.487	157.3	0.440	2.55	D110.9 D	38.3								202	02
250 ISL	7.36 D	7.34	34.004 D	26.591	148.1	0.517	2.14	D 93.1 D	31.7								252	
300 ISL	6.87 D	6.84	34.030 D	26.680	140.2	0.590	1.70	D 74.1 D	24.9								302	
400 ISL	6.08 D	6.04	34.077 D	26.822	127.7	0.725	1.05	D 45.5 D	15.1								403	
500 ISL	5.36 D	5.32	34.146 D	26.966	114.8	0.848	0.63	D 27.3 D	8.9								504	
516	5.30	5.25	34.154	26.980	113.5	0.865	0.55	24.0	7.8								521	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 66.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 47.3 N	124 12.3 W	26/04/2013	1519 UTC	3978 m	240 04 kn	280 02 07	4	1024.5 mb	12.4 C	12.3 C	18 m	0/8		095

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.09	13.09	33.207	24.986	296.1	0.000	6.28	273.8	105.1						0.41	0.10	0	
2 A	13.09	13.09	33.207	24.986	296.1	0.006	6.28	273.8	105.1						0.41	0.10	2	12
5 A	13.06	13.06	33.207 D	24.993	295.6	0.015	6.30	274.4	105.2						0.44	0.10	5	11
10 A	12.76	12.75	33.206 D	25.052	290.1	0.029	6.35	276.5	105.4						0.41	0.09	10	10
20 A	12.19	12.19	33.211 D	25.165	279.6	0.058	6.28	273.5	103.0						0.47	0.16	20	09
30 A	11.95	11.95	33.365 D	25.330	264.2	0.085	6.40	278.8	104.6						0.76	0.27	30	08
40 A	11.41	11.41	33.371 D	25.435	254.4	0.111	6.28	273.5	101.4						1.35	0.40	40	07
50 ISL	11.21 D	11.20	33.413 D	25.505	248.1	0.137	5.98	D260.3 D	96.2						0.86	0.35	50	
60	11.00	10.99	33.449 D	25.571	242.0	0.161	5.77	251.4	92.4						0.37	0.30	60	06
75 ISL	10.47 D	10.46	33.550 D	25.743	225.9	0.197	5.13	D223.2 D	81.2						0.22	0.37	76	
80 A	10.12	10.11	33.590 D	25.834	217.4	0.207	4.41	191.8	69.3						0.17	0.39	81	05
100	9.41	9.40	33.730 D	26.062	196.0	0.248	3.20	139.3	49.6						0.06	0.26	101	04
125 ISL	9.16 D	9.14	33.871 D	26.214	182.1	0.298	2.47	D107.5 D	38.1						0.04	0.21	126	
150	8.87	8.86	33.950 D	26.321	172.4	0.340	2.13	92.6	32.6						0.02	0.17	151	03
199	8.36	8.34	34.043 D	26.475	158.7	0.421	1.76	76.4	26.6						0.00	0.02	201	02
200 ISL	8.34 D	8.32	34.045 D	26.479	158.3	0.426	1.75	D 76.2 D	26.5						0.00	0.02	202	
250 ISL	7.84 D	7.82	34.084 D	26.585	149.0	0.503	1.51	D 65.6 D	22.6								252	
300 ISL	6.77 D	6.74	34.030 D	26.694	138.9	0.576	1.68	D 73.3 D	24.6								302	
400 ISL	6.00 D	5.97	34.091 D	26.843	125.6	0.709	0.95	D 41.3 D	13.6								403	
500 ISL	5.32 D	5.27	34.156 D	26.979	113.4	0.830	0.56	D 24.4 D	7.9								504	
514	5.25	5.20	34.160	26.990	112.5	0.848	0.53	23.0	7.4								518	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 70.0 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 10.2 N	121 44.2 W	24/04/2013	1349	UTC	506 m	130 08 kn			1013.2 mb	11.9 C	10.9 C				074

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	10.62	10.62	33.813	25.918	207.4	0.000	5.32	231.6	84.7						2.44	0.67	0	
2	10.62	10.62	33.813	25.918	207.5	0.004	5.32	231.6	84.7						2.44	0.67	2	12
10	10.47	10.47	33.816 D	25.947	204.9	0.021	5.07	220.9	80.5						2.08	0.62	10	11
20	10.20	10.20	33.804 D	25.984	201.6	0.041	4.73	205.9	74.6						1.74	0.43	20	10
30	10.07	10.07	33.813 D	26.015	199.0	0.061	4.39	191.2	69.1						1.63	0.56	30	09
50	9.70	9.70	33.918 D	26.159	185.7	0.100	4.04	175.8	63.1						1.15	0.48	50	08
75	9.59	9.58	33.958 D	26.211	181.4	0.147	3.75	163.1	58.4						0.98	0.49	76	07
100	9.55	9.54	33.961 D	26.220	181.1	0.192	3.65	159.0	56.9						1.00	0.41	101	06
125 ISL	9.44 D	9.43	33.971 D	26.246	179.2	0.238	3.47	D150.9 D	53.8						0.82	0.41	126	
150 ISL	9.31 D	9.30	33.982 D	26.277	176.8	0.282	3.13	D136.3 D	48.5						0.65	0.40	151	
151	9.30	9.29	33.983 D	26.279	176.6	0.284	3.12	135.6	48.2						0.65	0.40	152	05
200	8.98	8.96	34.013 D	26.356	170.2	0.370	2.87	124.7	44.0						0.51	0.33	202	04
250 ISL	8.24 D	8.21	34.116 D	26.552	152.4	0.451	1.34	D 58.2 D	20.2								252	
299	7.83	7.80	34.145 D	26.636	145.1	0.525	1.14	49.5	17.1								301	03
300 ISL	7.84 D	7.81	34.144 D	26.634	145.3	0.526	1.14	D 49.4 D	17.0								302	
400	7.21	7.17	34.193 D	26.764	134.3	0.667	0.79	34.4	11.7								403	02
450	6.84	6.79	34.211 D	26.831	128.5	0.734	0.61	26.5	8.9								454	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 70.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 53.2 N	122 21.4 W	24/04/2013	1814	UTC	3031 m	160 11 kn	140 02 09	2	1014.4 mb	12.1 C	11.5 C	11 m	8/8	ST	075

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.16	12.16	33.628	25.494	247.8	0.000	6.16	268.2	101.3						1.27	0.38	0	
2	12.16	12.16	33.628	25.494	247.9	0.005	6.16	268.2	101.3						1.27	0.38	2	12
10	12.04	12.04	33.624 D	25.513	246.2	0.025	6.22	270.7	101.9						1.52	0.49	10	11
19	11.30	11.30	33.589 D	25.624	235.9	0.047	6.21	270.3	100.2						2.13	1.02	19	10
20 ISL	11.23 D	11.23	33.587 D	25.635	234.9	0.049	6.08	D264.9 D	98.0						2.08	1.01	20	
30	11.14	11.13	33.605 D	25.667	232.1	0.073	5.96	259.6	95.9						1.65	0.93	30	09
50	10.90	10.89	33.647 D	25.743	225.4	0.119	5.65	245.8	90.3						0.65	0.45	50	08
75	10.28	10.27	33.722 D	25.909	210.1	0.174	3.84	167.2	60.7						0.16	0.30	76	07
100	9.70	9.69	33.798 D	26.067	195.6	0.225	2.73	119.0	42.7						0.05	0.25	101	06
125 ISL	9.18 D	9.17	33.890 D	26.225	181.0	0.272	2.54	D110.5 D	39.2						0.04	0.22	126	
150	8.80	8.78	33.933 D	26.320	172.5	0.317	2.55	110.9	39.0						0.03	0.20	151	05
200	8.32	8.29	34.051 D	26.488	157.4	0.400	1.95	84.7	29.5						0.03	0.12	202	04
250 ISL	7.57 D	7.54	34.078 D	26.620	145.5	0.476	1.50	D 65.2 D	22.3								252	
299	7.02	6.99	34.103 D	26.717	136.8	0.546	1.21	52.6	17.8								301	03
300 ISL	7.02 D	6.99	34.105 D	26.719	136.7	0.547	1.18	D 51.4 D	17.4								302	
400	6.75	6.72	34.240 D	26.864	124.4	0.679	0.52	22.8	7.7								403	02
500 ISL	5.90 D	5.86	34.246 D	26.980	114.1	0.800	0.37	D 16.3 D	5.4								504	
515	5.82	5.78	34.266	27.006	111.8	0.811	0.33	14.1	4.7								519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 70.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 32.9 N	123 4.0 W	25/04/2013	0037	UTC	3868 m	140 09 kn	120 02 08	1	1012.8 mb	13.9 C	12.8 C	13 m	7/8	SC	076

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.43	12.43	33.554	25.384	258.2	0.000	6.40	278.5	105.7						1.51	0.46	0	
2	12.43	12.43	33.554	25.384	258.3	0.005	6.40	278.5	105.7						1.51	0.46	2	12
10	11.51	11.51	33.499 D	25.516	246.0	0.026	6.30	274.4	102.1						1.45	0.57	10	11
19	11.51	11.50	33.509 D	25.524	245.4	0.048	6.18	D269.2 D	100.1						1.45	0.42	19	10
20 ISL	11.51 D	11.51	33.513 D	25.526	245.2	0.050	6.13	D266.8 D	99.3						1.41	0.43	20	
30	11.41	11.40	33.554 D	25.578	240.6	0.075	6.01	261.9	97.2						1.02	0.53	30	09
50	11.17	11.16	33.592 D	25.652	234.0	0.123	5.82	253.3	93.6						0.43	0.43	50	08
74	11.02	11.01	33.602 D	25.688	231.3	0.179	5.63	245.1	90.3						0.35	0.30	75	07
75 ISL	11.02 D	11.01	33.602 D	25.688	231.3	0.181	5.49	D239.2 D	88.1						0.34	0.30	76	
100	9.80	9.79	33.760 D	26.021	200.0	0.235	3.37	146.6	52.6						0.14	0.24	101	06
125 ISL	9.28 D	9.27	33.858 D	26.184	185.0	0.284	2.57	D112.0 D	39.8						0.08	0.21	126	
150	8.81	8.79	33.963 D	26.342	170.4	0.329	2.28	99.3	34.9						0.02	0.18	151	05
200	8.16	8.14	34.040 D	26.503	155.9	0.411	1.98	86.1	29.9						0.01	0.14	202	04
250 ISL	7.95 D	7.92	34.138 D	26.612	146.5	0.487	1.27	D 55.4 D	19.1								252	
300 ISL	7.47 D	7.44	34.163 D	26.702	138.6	0.559	0.98	D 42.5 D	14.5								302	
301	7.46	7.43	34.163 D	26.704	138.4	0.560	0.98	42.4	14.5								303	03
400 ISL	6.29 D	6.25	34.150 D	26.853	125.0	0.692	0.73	D 31.8 D	10.6								403	
401	6.28	6.24	34.147 D	26.853	125.0	0.693	0.73	31.7	10.5								404	02
500 ISL	5.77 D	5.72	34.233 D	26.987	113.3	0.812	0.39	D 16.7 D	5.5								504	
515	5.74	5.70	34.246	27.000	112.2	0.823	0.35	15.1	4.9								519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 70.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 13.1 N	123 46.6 W	25/04/2013	1631	UTC	4098 m	120 05 kn	120 01 06	2	1018.2 mb	13.9 C	13.1 C	16 m	7/8	ST	083

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.46	12.46	33.288	25.172	278.4	0.000	6.34	D306.9	D104.6						0.54	0.12	0	
2	12.46	12.46	33.288	25.173	278.4	0.006	6.34	D276.0	D104.6						0.54	0.12	2	13
9	12.35	12.34	33.276 D	25.186	277.4	0.025	6.35	276.8	104.6						0.66	0.16	9	12
10 ISL	12.34 D	12.33	33.275 D	25.187	277.3	0.028	6.37	D277.7	D104.9						0.68	0.16	10	
19	12.11	12.11	33.269 D	25.226	273.8	0.053	6.39	278.1	104.6						0.78	0.22	19	11
20 ISL	12.10 D	12.10	33.270 D	25.228	273.6	0.056	6.37	D277.6	D104.4						0.78	0.22	20	
29	12.06	12.06	33.274 D	25.240	272.7	0.081	6.33	275.6	103.5						0.75	0.24	29	10
30 ISL	12.06 D	12.06	33.277 D	25.241	272.6	0.083	6.32	D275.2	D103.4						0.75	0.25	30	
50	11.84	11.83	33.305 D	25.306	267.0	0.138	6.25	272.4	101.9						0.77	0.34	50	09
74	10.45	10.44	33.387 D	25.619	237.7	0.199	5.53	240.8	87.5						0.12	0.20	75	08
75 ISL	10.45 D	10.44	33.391 D	25.623	237.3	0.201	5.20	D226.4	D 82.2						0.12	0.20	76	
99	9.36	9.35	33.442 D	25.845	216.6	0.256	4.50	195.7	69.4						0.05	0.14	100	07
100 ISL	9.33 D	9.32	33.459 D	25.863	214.9	0.258	4.46	D194.3	D 68.9						0.05	0.14	101	
125 ISL	8.80 D	8.78	33.636 D	26.087	194.1	0.310	4.22	D183.5	D 64.4						0.04	0.13	126	
150	8.60	8.58	33.835 D	26.274	176.8	0.356	3.34	D146.4	D 50.9						0.02	0.12	151	06
200	8.02	8.00	33.974 D	26.472	158.8	0.441	2.68	116.7	40.3						0.02	0.15	202	05
250 ISL	7.21 D	7.19	33.990 D	26.600	147.1	0.518	2.15	D 93.7	D 31.8								252	
300	6.60	6.57	34.011 D	26.701	138.0	0.590	1.75	76.0	25.4								302	04
399	5.81	5.78	34.082 D	26.859	124.0	0.721	0.97	42.2	13.9								402	02
400 ISL	5.81 D	5.77	34.077 D	26.856	124.2	0.722	0.95	D 41.2	D 13.5								403	
500 ISL	5.30 D	5.25	34.167 D	26.990	112.4	0.842	0.54	D 23.3	D 7.6								504	
515	5.29	5.25	34.192	27.011	110.6	0.853	0.46	20.1	6.5								519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CTD O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 70.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 52.9 N	124 28.8 W	25/04/2013	2350	UTC	4347 m	110 07 kn	120 02 08	1	1019.6 mb	14.7 C	13.4 C	12 m	4/8	ST	091

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.33	13.33	32.951	24.740	319.5	0.000	6.33	275.8	106.2						0.57	0.10	0	
1	13.33	13.33	32.951	24.740	319.5	0.003	6.33	275.8	106.2						0.57	0.10	1	12
9	12.45	12.45	32.947 D	24.911	303.5	0.028	6.38	277.8	105.0						0.63	0.11	9	11
10 ISL	12.40 D	12.40	32.947 D	24.920	302.7	0.031	6.40	D278.8	D105.3						0.64	0.12	10	
20	12.29	12.29	32.946 D	24.941	300.9	0.062	6.34	D276.3	D104.1						0.76	0.19	20	10
29	12.25	12.24	32.945 D	24.949	300.4	0.089	6.32	275.5	103.7						0.86	0.25	29	09
30 ISL	12.23 D	12.23	32.946 D	24.952	300.1	0.092	6.33	D275.7	D103.7						0.85	0.25	30	
50	11.84	11.84	32.950 D	25.029	293.3	0.152	6.23	271.6	101.3						0.67	0.26	50	08
74	11.44	11.43	33.017 D	25.156	281.8	0.222	6.15	267.7	99.1						0.33	0.19	75	07
75 ISL	11.44 D	11.43	33.017 D	25.156	281.9	0.224	6.10	D265.7	D 98.3						0.33	0.19	76	
99	11.16	11.14	33.170 D	25.327	266.2	0.290	5.76	250.8	92.4						0.23	0.16	100	06
100 ISL	11.17 D	11.15	33.179 D	25.333	265.6	0.293	5.68	D247.6	D 91.2						0.23	0.16	101	
125 ISL	10.31 D	10.29	33.184 D	25.488	251.3	0.358	5.41	D235.8	D 85.3						0.13	0.12	126	
150	9.49	9.47	33.487 D	25.861	216.2	0.417	4.22	183.5	65.3						0.02	0.08	151	05
200	8.46	8.44	33.891 D	26.340	171.5	0.515	3.66	159.1	55.5						0.02	0.06	202	04
250 ISL	8.17 D	8.15	34.069 D	26.525	154.9	0.597	1.83	D 79.5	D 27.6								252	
300	7.25	7.22	34.040 D	26.635	144.7	0.673	1.84	79.9	27.1								302	03
400	6.43	6.39	34.095 D	26.792	130.9	0.812	1.05	45.8	15.3								403	02
500 ISL	5.57 D	5.53	34.140 D	26.937	117.8	0.937	0.65	D 28.4	D 9.3								504	
515	5.56	5.52	34.156	26.950	116.7	0.946	0.59	25.8	8.4								519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 76.7 49.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 5.6 N	120 46.7 W	23/04/2013	1642	UTC	63 m	080 06 kn	340 01 08	4	1015.7 mb	12.5 C	11.3 C	05 m	0/8		071

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.13	11.13	33.868	25.872	211.9	0.000	5.24	228.3	84.5	20.0	1.34	16.0	0.17	0.18	12.78	0.54	0	
2 A	11.13	11.13	33.868	25.872	211.9	0.004	5.24	228.3	84.5	20.0	1.34	16.0	0.17	0.18	12.78	0.54	2	11
3 A	11.09	11.09	33.867	25.878	211.3	0.006	5.25	228.6	84.5	20.4	1.38	16.2	0.17	0.23	11.76	1.43	3	10
4 A	10.78	10.78	33.860	25.927	206.7	0.008	4.82	209.7	77.0	22.4	1.53	18.3	0.17	0.17	9.62	1.12	4	09
8 A	10.33	10.33	33.865	26.009	199.0	0.017	4.38	190.6	69.3	24.2	1.69	20.2	0.16	0.14	7.45	0.87	8	08
10 ISL	10.14 D	10.14	33.882 D	26.055	194.7	0.021	4.39	D191.1	D 69.2	24.1	1.69	20.2	0.16	0.14	8.12	0.98	10	
16 A	10.12	10.12	33.883	26.061	194.3	0.032	4.25	184.9	66.9	24.0	1.67	20.1	0.16	0.15	10.13	1.29	16	07
18 A	10.12	10.12	33.892	26.068	193.7	0.036	4.30	187.3	67.8	24.1	1.67	19.9	0.16	0.16	10.44	1.42	18	06
20 ISL	10.11 D	10.10	33.887 D	26.067	193.8	0.040	4.34	D189.1	D 68.4	24.4	1.69	20.3	0.16	0.13	10.31	1.34	20	
24	10.06	10.06	33.893	26.078	192.8	0.048	4.12	179.4	64.9	24.9	1.72	21.0	0.15	0.08	10.04	1.17	24	05
29	10.01	10.00	33.942	26.126	188.5	0.057	4.31	187.6	67.8	20.8	1.65	20.2	0.15	0.46	9.88	1.19	29	04
30 ISL	10.00 D	10.00	33.963 D	26.143	186.8	0.059	4.31	D187.6	D 67.8	21.5	1.69	20.5	0.15	0.51	9.55	1.22	30	
39	9.77	9.77	33.965	26.184	183.1	0.076	3.47	150.8	54.2	28.3	2.01	23.5	0.18	0.94	6.55	1.50	39	03
50	9.62	9.62	33.970	26.213	180.6	0.096	2.87	124.9	44.7	33.9	2.23	25.2	0.20	1.15	1.77	1.64	50	02
60	9.61	9.61	33.971	26.216	180.6	0.114	2.80	121.7	43.6	34.5	2.23	25.3	0.22	1.29	1.62	1.49	60	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 76.7 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 1.1 N	120 55.3 W	23/04/2013	0930 UTC	246 m	160 07 kn			1013.2 mb	11.9 C	11.2 C				070

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.55	11.55	33.744	25.698	228.4	0.000	6.04	262.9	98.0	16.6	1.31	14.1	0.19	0.23	4.42	0.92	0	
2	11.55	11.55	33.744	25.698	228.4	0.005	6.04	262.9	98.0	16.6	1.31	14.1	0.19	0.23	4.42	0.92	2	15
10	11.15	11.15	33.744	25.771	221.7	0.023	5.46	237.7	87.9	18.2	1.46	16.3	0.20	0.23	2.43	0.60	10	14
20	10.88	10.88	33.763	25.835	215.9	0.045	5.12	222.8	81.9	19.9	1.58	17.8	0.21	0.20	1.96	0.64	20	13
30	10.70	10.70	33.804	25.899	210.1	0.066	4.83	210.4	77.1	22.5	1.70	19.4	0.18	0.16	2.47	0.75	30	12
40	10.30	10.30	33.848	26.003	200.4	0.086	4.12	179.3	65.1	25.4	1.85	21.9	0.18	0.17	2.38	0.65	40	11
50	10.03	10.02	33.888	26.081	193.2	0.106	3.80	165.4	59.8	27.2	1.95	22.9	0.19	0.46	1.39	0.55	50	10
60	9.93	9.93	33.917	26.121	189.7	0.125	3.76	163.5	58.9	28.3	1.98	23.2	0.18	0.66	1.65	0.77	60	09
71	9.68	9.67	33.926	26.169	185.2	0.146	3.16	137.6	49.3	30.1	2.09	24.9	0.18	0.43	0.88	0.59	72	08
75 ISL	9.65 D	9.64	33.935 D	26.181	184.2	0.154	2.96	D128.6 D	46.1	30.4	2.11	25.3	0.18	0.37	0.73	0.57	76	
86	9.60	9.59	33.939	26.193	183.3	0.173	2.85	124.1	44.4	31.2	2.17	26.3	0.17	0.19	0.31	0.50	87	07
100	9.43	9.42	33.970	26.246	178.6	0.199	2.52	109.8	39.2	34.1	2.25	26.9	0.20	0.39	0.54	0.66	101	06
120	9.23	9.22	34.001	26.303	173.6	0.234	2.05	89.0	31.6	38.1	2.39	28.1	0.25	0.61	0.42	0.84	121	05
125 ISL	9.19 D	9.18	34.011 D	26.318	172.3	0.244	1.97	D 85.7 D	30.4	37.9	2.39	28.2	0.24	0.53	0.39	0.77	126	
139	9.20	9.18	34.021	26.325	172.0	0.267	1.88	81.7	29.0	37.5	2.40	28.5	0.21	0.31	0.29	0.58	140	04
150 ISL	9.26 D	9.24	34.052 D	26.340	170.7	0.288	1.72	D 74.6 D	26.5	37.7	2.42	28.9	0.16	0.24	0.21	0.46	151	
173	8.98	8.96	34.094	26.418	163.8	0.324	1.55	67.5	23.9	37.9	2.45	29.7	0.04	0.10	0.02	0.21	174	03
200 ISL	8.85 D	8.82	34.103 D	26.447	161.6	0.371	1.49	D 64.6 D	22.8	39.5	2.48	30.0	0.05	0.14	0.03	0.22	202	
202	8.83	8.81	34.099	26.447	161.6	0.371	1.48	64.4	22.7	39.7	2.48	30.0	0.05	0.14	0.03	0.23	204	02
231	8.38	8.36	34.137	26.546	152.6	0.417	1.40	D 60.8 D	21.2	48.1	2.67	32.4	0.05	0.09			233	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 76.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 53.4 N	121 11.8 W	23/04/2013	0550 UTC	560 m	150 03 kn			1014.2 mb	12.6 C	11.2 C				069

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.15	12.15	33.711	25.560	241.5	0.000	6.29	273.8	103.4	7.8	0.96	9.9	0.14	0.28	3.72	0.84	0	
1	12.15	12.15	33.711	25.561	241.5	0.002	6.29	273.8	103.4	7.8	0.96	9.9	0.14	0.28	3.72	0.84	1	21
10	11.60	11.60	33.714	25.666	231.7	0.024	5.89	256.6	95.8	10.5	1.12	11.9	0.14	0.13	4.82	0.85	10	20
20	11.10	11.10	33.792	25.817	217.5	0.046	5.24	228.0	84.3	17.1	1.41	16.2	0.15	0.20	5.66	1.25	20	19
30	10.53	10.53	33.844	25.960	204.3	0.067	4.60	200.2	73.1	22.5	1.74	20.1	0.19	0.79	1.20	0.73	30	18
40	10.42	10.42	33.852	25.986	202.0	0.088	4.41	192.1	70.0	23.5	1.79	20.6	0.19	0.79	0.99	0.78	40	17
50	10.39	10.39	33.859	25.997	201.3	0.108	4.30	187.3	68.2	24.3	1.82	21.2	0.20	0.83	0.73	0.65	50	16
60	10.15	10.14	33.870	26.047	196.6	0.128	3.99	173.7	62.9	25.3	1.87	22.0	0.20	0.83	0.59	0.75	60	15
70	9.51	9.50	33.869	26.154	186.7	0.147	2.71	117.9	42.1	28.9	2.02	25.7	0.13	0.15	0.17	0.58	71	14
75 ISL	9.29 D	9.28	33.870 D	26.190	183.3	0.157	2.66	D115.7 D	41.1	29.3	2.03	26.0	0.10	0.11	0.13	0.50	76	
85	9.10	9.09	33.890	26.236	179.1	0.174	2.55	110.8	39.2	30.3	2.04	26.6	0.04	0.03	0.05	0.34	86	13
100	8.99	8.98	33.955	26.321	171.4	0.202	2.23	97.2	33.4	32.9	2.13	27.7	0.06	0.09	0.04	0.37	101	11
100	8.99	8.98	33.967	26.314	172.0	0.201	2.22	96.7	34.2	33.1	2.14	27.7	0.06	0.04	0.05	0.35	101	12
120	8.97	8.95	34.003	26.347	169.3	0.235	1.99	86.4	30.5	34.9	2.21	28.4	0.06	0.10	0.04	0.37	121	10
125 ISL	8.94 D	8.92	34.024 D	26.368	167.4	0.244	1.95	D 84.7 D	29.9	35.4	2.23	28.6	0.06	0.11	0.03	0.35	126	
140	8.82	8.81	34.044	26.402	164.5	0.268	1.81	78.6	27.7	37.0	2.28	29.2	0.06	0.15	0.02	0.28	141	09
150 ISL	8.81 D	8.79	34.058 D	26.416	163.4	0.286	1.76	D 76.5 D	26.9	37.7	2.31	29.5	0.07	0.15	0.02	0.25	151	
170	8.77	8.75	34.082	26.441	161.4	0.317	1.59	69.2	24.3	39.1	2.36	30.0	0.09	0.16	0.03	0.19	171	08
200	8.55	8.53	34.122	26.508	155.7	0.364	1.33	58.0	20.3	42.5	2.47	31.0	0.09	0.09	0.07	0.25	202	07
232	8.23	8.20	34.157	26.585	148.9	0.413	1.19	51.9	18.0	46.0	2.54	32.0	0.02	0.05			234	06
250 ISL	8.02 D	8.00	34.168 D	26.625	145.3	0.442	1.10	D 47.8 D	16.5	47.5	2.57	32.5	0.02	0.05			252	
270	7.99	7.96	34.167	26.630	145.2	0.469	1.09	47.5	16.4	49.1	2.61	33.0	0.02	0.06			272	05
300 ISL	7.71 D	7.68	34.196 D	26.694	139.5	0.515	0.92	D 40.1 D	13.8	52.1	2.68	33.9	0.01	0.08			302	
320	7.60	7.56	34.198	26.712	138.1	0.539	0.90	38.9	13.3	54.0	2.73	34.5	0.00	0.10			323	04
381	6.95	6.91	34.171	26.783	132.0	0.622	0.82	35.5	12.0	60.4	2.82	36.4	0.00	0.14			384	03
400 ISL	7.05 D	7.02	34.246 D	26.828	128.2	0.650	0.58	D 25.4 D	8.6	63.0	2.87	36.9	0.01	0.13			403	
441	6.56	6.52	34.220	26.874	124.0	0.698	0.51	22.2	7.4	68.5	2.97	37.9	0.02	0.12			445	02
500 ISL	6.31 D	6.27	34.259 D	26.939	118.5	0.775	0.39	D 17.1 D	5.7	75.6	3.06	38.7	0.05	0.18			504	
515	6.14	6.10	34.274	26.972	115.4	0.787	0.34	14.7	4.9	77.5	3.08	38.9	0.06	0.20			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 76.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 43.3 N	121 33.0 W	22/04/2013	2309 UTC	935 m	230 09 kn	290 04 08	2	1014.1 mb	14.1 C	13.0 C	06 m	8/8	ST	068

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.68	11.68	33.745	25.675	230.6	0.000	6.56	285.8	106.9	13.3	1.19	11.6	0.07	0.14	6.45	1.34	0	
2	11.68	11.68	33.745	25.675	230.6	0.005	6.56	285.8	106.9	13.3	1.19	11.6	0.07	0.14	6.45	1.34	2	20
10	11.39	11.39	33.752	25.734	225.2	0.023	6.15	267.9	99.6	13.8	1.27	12.9	0.07	0.19	6.45	1.27	10	19
20 ISL	11.25 D	11.25	33.756 D	25.763	222.8	0.045	5.94	D258.6 D	95.9	15.3	1.35	14.0	0.07	0.33	5.29	1.13	20	
21	11.24	11.24	33.767	25.774	221.7	0.047	5.90	257.1	95.2	15.5	1.36	14.1	0.07	0.34	5.18	1.12	21	18
30 ISL	11.13 D	11.13	33.781 D	25.804	219.1	0.068	5.80	D252.3 D	93.3	16.1	1.41	14.6	0.07	0.36	5.71	1.18	30	
31	11.11	11.10	33.781	25.808	218.7	0.069	5.86	255.3	94.3	16.1	1.41	14.6	0.07	0.36	5.77	1.19	31	17
40	10.97	10.97	33.791	25.841	215.8	0.089	5.44	236.8	87.3	18.1	1.58	16.6	0.07	0.64	3.35	1.11	40	16
50 ISL	10.80 D	10.79	33.815 D	25.891	211.3	0.111	5.02	D218.4 D	80.2	19.3	1.69	18.1	0.08	0.68	3.17	0.83	50	
51	10.80	10.79	33.814	25.890	211.4	0.113	5.12	223.1	81.9	19.5	1.70	18.2	0.08	0.68	3.15	0.81	51	15
61	10.65	10.65	33.812	25.915	209.3	0.134	4.93	214.6	78.5	20.3	1.76	18.8	0.08	1.03	1.91	0.84	62	14
70	10.28	10.27	33.811	25.978	203.5	0.152	4.40	191.3	69.5	22.8	1.89	20.5	0.08	0.79	0.59	0.60	71	13
75 ISL	10.18 D	10.17	33.861 D	26.036	198.1	0.163	4.09	D178.2 D	64.6	24.4	1.96	21.6	0.08	0.65	0.53	0.60	76	
85	9.86	9.85	33.874	26.099	192.3	0.182	3.57	155.3	55.9	27.4	2.09	23.9	0.08	0.36	0.41	0.61	86	12
100	9.58	9.56	33.877 D	26.150	187.7	0.211	2.81	D122.4 D	43.8								101	11
119	8.94	8.92	33.929	26.293	174.4	0.245	2.41	104.7	36.9	31.8	2.26	27.4	0.02	0.13	0.04	0.35	120	10
125 ISL	8.89 D	8.87	33.945 D	26.315	172.5	0.257	2.39	D103.9 D	36.6	32.8	2.28	27.8	0.02	0.11	0.04	0.33	126	
141	8.30	8.28	33.987	26.438	160.9	0.282	2.26	98.4	34.2	35.6	2.34	28.8	0.02	0.07	0.04	0.27	142	09
150 ISL	8.27 D	8.26	33.996 D	26.449	160.1	0.298	1.49	D 64.6 D	22.5	36.9	2.37	29.2	0.01	0.07	0.03	0.24	151	
170	8.05	8.04	34.028	26.508	154.8	0.328	2.10	91.4	31.6	39.8	2.44	30.2	0.00	0.07	0.01	0.17	171	08
200 ISL	7.71 D	7.69	34.062 D	26.585	147.9	0.375	1.78	D 77.6 D	26.6	44.9	2.59	31.9	0.00	0.06	0.01	0.17	202	
201	7.72	7.70	34.060	26.582	148.2	0.374	1.79	78.0	26.8	45.1	2.60	32.0	0.00	0.06	0.01	0.17	203	07
230	7.71	7.68	34.136	26.646	142.8	0.417	1.26	54.9	18.9	49.6	2.79	33.5	0.00	0.11			232	06
250 ISL	7.51 D	7.49	34.142 D	26.678	140.0	0.448	1.15	D 50.2 D	17.2	52.0	2.86	34.1	0.00	0.10			252	
270	7.41	7.38	34.167	26.714	136.9	0.473	0.99	43.0	14.7	54.3	2.92	34.7	0.00	0.08			272	05
300 ISL	7.18 D	7.15	34.221 D	26.788	130.3	0.516	0.78	D 33.9 D	11.5	58.1	3.02	35.5	0.00	0.09			302	
320	7.12	7.09	34.219	26.796	129.8	0.539	0.68	29.8	10.1	60.7	3.08	36.1	0.00	0.09			323	04
381	6.71	6.67	34.256	26.882	122.4	0.616	0.48	20.9	7.0	67.8	3.22	37.5	0.00	0.07			384	03
400 ISL	6.59 D	6.56	34.265 D	26.905	120.4	0.643	0.46	D 20.0 D	6.7	69.3	3.24	37.8	0.00	0.08			403	
442	6.43	6.39	34.274	26.935	118.1	0.689	0.40	17.4	5.8	72.4	3.28	38.4	0.00	0.11			446	02
500 ISL	6.18 D	6.14	34.297 D	26.985	114.0	0.762	0.34	D 14.8 D	4.9	77.3	3.34	39.5	0.00	0.08			504	
515	6.01	5.97	34.292	27.003	112.3	0.773	0.32	13.8	4.6	78.6	3.35	39.8	0.00	0.07			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 76.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 23.6 N	122 16.4 W	22/04/2013	1658 UTC	3988 m	320 07 kn	290 03 08	0	1016.3 mb	13.4 C	13.0 C	20 m	0/8		064

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.17	12.17	33.406	25.319	264.4	0.000	6.14	267.5	100.9	5.7	0.80	6.3	0.05	0.22	0.75	0.12	0	
2 A	12.17	12.17	33.406	25.319	264.4	0.005	6.14	267.5	100.9	5.7	0.80	6.3	0.05	0.22	0.75	0.12	2	21
10 ISL	12.04 D	12.04	33.408 D	25.346	262.2	0.027	6.16	D268.5	D100.9	5.7	0.80	6.2	0.05	0.20	0.82	0.12	10	
13 A	12.04	12.04	33.409	25.347	262.1	0.034	6.15	267.7	100.6	5.7	0.80	6.2	0.05	0.19	0.85	0.12	13	20
16 A	12.05	12.05	33.416	25.350	261.9	0.042	6.14	267.6	100.6	5.7	0.80	6.3	0.05	0.21	0.78	0.13	16	19
20 ISL	12.06 D	12.05	33.415 D	25.350	262.1	0.053	6.16	D268.5	D101.0	5.7	0.80	6.3	0.05	0.22	0.76	0.18	20	
24	12.06	12.05	33.413	25.348	262.3	0.063	6.13	267.0	100.4	5.8	0.80	6.3	0.05	0.22	0.74	0.23	24	18
30 ISL	11.97 D	11.97	33.439 D	25.385	259.0	0.079	6.07	D264.5	D 99.3	6.1	0.85	6.8	0.05	0.32	0.75	0.21	30	
32 A	11.97	11.96	33.437	25.383	259.2	0.084	6.05	263.6	98.9	6.2	0.86	7.0	0.05	0.35	0.76	0.20	32	17
40	11.93	11.93	33.436	25.390	258.8	0.105	6.05	263.6	98.9	6.1	0.86	7.0	0.05	0.34	0.79	0.22	40	16
50	11.83	11.83	33.436	25.409	257.3	0.131	5.95	259.0	96.9	6.7	0.89	7.5	0.05	0.35	0.60	0.19	50	15
58 A	11.94	11.93	33.509	25.446	253.9	0.151	5.98	260.3	97.7	6.9	0.93	8.0	0.05	0.56	0.62	0.14	58	14
69 A	11.82	11.81	33.506	25.467	252.2	0.179	5.94	258.7	96.9	7.0	0.95	8.2	0.05	0.57	0.62	0.19	70	13
75 ISL	11.66 D	11.65	33.480 D	25.477	251.4	0.195	5.86	D255.4	D 95.3	7.0	0.95	8.2	0.05	0.55	0.59	0.19	76	
85	10.74	10.73	33.419 D	25.594	240.4	0.220	5.30	D230.6	D 84.3								86	12
100	9.52	9.51	33.502	25.866	214.6	0.253	4.23	184.3	65.6	17.8	1.54	18.3	0.00	0.08	0.04	0.07	101	11
120	9.09	9.08	33.712 D	26.099	192.9	0.295	3.80	165.2	58.4	22.4	1.76	21.6	0.00	0.09	0.02	0.06	121	10
125 ISL	9.10 D	9.09	33.737 D	26.118	191.2	0.305	3.65	D159.0	D 56.2	23.7	1.82	22.5	0.00	0.09	0.02	0.08	126	
142	8.91	8.90	33.833	26.223	181.6	0.335	3.04	132.5	46.7	28.2	2.02	25.6	0.00	0.08	0.02	0.14	143	09
150 ISL	8.84 D	8.83	33.854 D	26.251	179.1	0.351	3.04	D132.2	D 46.5	29.5	2.05	26.1	0.00	0.08	0.02	0.12	151	
171	8.45	8.44	33.950 D	26.387	166.5	0.388	2.77	120.6	42.1	32.8	2.14	27.3	0.00	0.08	0.01	0.08	172	08
200 ISL	7.93 D	7.91	33.992 D	26.499	156.2	0.435	2.53	D110.2	D 38.0	38.2	2.27	29.1	0.00	0.10	0.01	0.07	202	
201	7.93	7.91	33.986	26.494	156.7	0.434	2.54	110.4	38.1	38.4	2.27	29.2	0.00	0.10	0.01	0.07	203	07
230	7.55	7.53	34.005	26.565	150.3	0.478	2.14	93.0	31.8	43.8	2.45	31.5	0.00	0.08			232	06
250 ISL	7.33 D	7.30	34.036 D	26.621	145.2	0.511	1.87	D 81.3	D 27.7	48.4	2.56	33.0	0.00	0.08			252	
270	6.87	6.85	34.030	26.679	139.8	0.536	1.71	74.4	25.1	53.1	2.67	34.4	0.00	0.07			272	05
300 ISL	6.76 D	6.73	34.064 D	26.721	136.2	0.582	1.41	D 61.2	D 20.6	57.5	2.78	35.7	0.00	0.09			302	
320	6.43	6.40	34.055	26.758	132.8	0.605	1.33	57.8	19.3	60.4	2.86	36.6	0.00	0.11			323	04
381	6.05	6.02	34.097	26.841	125.6	0.683	0.92	39.8	13.2	69.2	3.03	38.9	0.00	0.12			384	03
400 ISL	5.92 D	5.88	34.103 D	26.863	123.6	0.712	0.87	D 38.0	D 12.5	71.3	3.07	39.3	0.00	0.12			403	
440	5.69	5.65	34.128	26.911	119.4	0.756	0.70	30.4	9.9	75.9	3.16	40.0	0.00	0.12			444	02
500 ISL	5.40 D	5.35	34.199 D	27.004	111.2	0.831	0.45	D 19.6	D 6.4	83.9	3.28	41.2	0.00	0.13			504	
515	5.37	5.33	34.206	27.013	110.5	0.842	0.39	17.1	5.5	85.9	3.31	41.5	0.00	0.13			519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 76.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 3.2 N	122 56.4 W	22/04/2013	1015 UTC	4258 m	330 11 kn			1016.1 mb	12.9 C	12.1 C				063

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.55	12.55	33.213	25.097	285.5	0.000	6.23	271.4	103.0	3.5	0.52	2.2	0.10	0.29	0.62	0.12	0	
3	12.55	12.55	33.213	25.098	285.6	0.009	6.23	271.4	103.0	3.5	0.52	2.2	0.10	0.29	0.62	0.12	3	20
10	12.55	12.55	33.212	25.096	285.9	0.029	6.19	269.7	102.4	3.5	0.51	2.2	0.10	0.24	0.45	0.10	10	19
20	12.54	12.54	33.217	25.102	285.6	0.057	6.20	270.0	102.4	3.6	0.52	2.3	0.10	0.26	0.46	0.10	20	18
30	12.47	12.46	33.227	25.126	283.7	0.086	6.19	269.7	102.2	3.7	0.54	2.6	0.10	0.24	0.64	0.18	30	17
40	12.41	12.40	33.244	25.150	281.6	0.114	6.15	268.0	101.4	3.9	0.57	3.0	0.11	0.40	0.64	0.18	40	16
50	12.40	12.39	33.277	25.179	279.1	0.142	6.15	268.0	101.4	4.1	0.60	3.4	0.12	0.36	0.56	0.15	50	15
61	12.21	12.21	33.395	25.306	267.4	0.172	6.04	263.1	99.3	4.8	0.73	4.6	0.20	0.85	0.41	0.23	61	14
71	12.19	12.18	33.469	25.369	261.6	0.199	6.00	261.5	98.6	5.3	0.80	5.5	0.21	1.02	0.28	0.16	72	13
75 ISL	12.16 D	12.15	33.482 D	25.385	260.3	0.210	5.93	D258.5	D 97.4	5.5	0.82	5.7	0.22	1.02	0.25	0.15	76	
86	11.98	11.97	33.484	25.420	257.2	0.238	5.90	256.8	96.5	6.0	0.86	6.4	0.25	1.03	0.18	0.14	87	12
100	11.56	11.55	33.456	25.477	252.1	0.273	5.78	251.5	93.6	7.0	0.92	7.6	0.33	0.81	0.12	0.14	101	11
120	10.25	10.23	33.431	25.690	232.0	0.322	4.68	203.6	73.7	14.0	1.33	15.3	0.03	0.10	0.05	0.14	121	10
125 ISL	10.06 D	10.05	33.481 D	25.761	225.3	0.335	4.46	D194.4	D 70.0	16.2	1.45	17.1	0.03	0.11	0.04	0.14	126	
140	9.44	9.43	33.644	25.990	203.7	0.365	3.51	152.7	54.4	22.6	1.79	22.6	0.03	0.12	0.02	0.12	141	09
150 ISL	9.31 D	9.30	33.708 D	26.063	197.1	0.387	3.30	D143.7	D 51.0	24.2	1.84	23.4	0.03	0.13	0.02	0.11	151	
170	8.95	8.93	33.826	26.214	183.1	0.423	3.16	137.7	48.5	27.4	1.93	25.1	0.03	0.16	0.01	0.10	171	08
200	8.50	8.48	33.936	26.370	168.7	0.476	2.80	121.8	42.6	32.4	2.06	27.3	0.02	0.18	0.01	0.09	202	07
230	8.10	8.07	33.973	26.460	160.5	0.525	2.59	112.7	39.0	36.4	2.17	28.8	0.02	0.16			232	06
250 ISL	7.89 D	7.87	33.999 D	26.511	156.0	0.561	2.32	D101.1	D 34.8	39.8	2.25	29.9	0.02	0.14			252	
271	7.53	7.50	34.008	26.571	150.5	0.589	2.26	98.2	33.5	43.3	2.33	31.0	0.02	0.12			273	05
300 ISL	7.36 D	7.33	34.057 D	26.634	145.0	0.636	1.71	D 74.3	D 25.3	48.4	2.50	33.0	0.01	0.16			302	
320	7.04	7.01	34.072	26.691	139.7	0.661	1.54	67.0	22.6	52.0	2.62	34.3	0.00	0.18			323	04
380	6.43	6.39	34.095	26.792	130.6	0.742	1.08	46.9	15.6	63.2	2.86	37.3	0.00	0.13			383	03
400 ISL	6.24 D	6.20	34.089 D	26.812	128.8	0.774	1.06	D 46.1	D 15.3	65.4	2.92	37.8	0.00	0.14			403	
440	6.15	6.11	34.165	26.884	122.5	0.818	0.66	28.6	9.5	70.0	3.03	38.7	0.00	0.15			444	02
500 ISL	5.69 D	5.65	34.188 D	26.960	115.7	0.896	0.52	D 22.6	D 7.4	78.2	3.15	40.2	0.00	0.16			504	
514	5.72	5.67	34.210	26.974	114.6	0.905	0.44	19.1	6.3	80.2	3.18	40.6	0.00	0.16			518	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 76.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 43.3 N	123 38.0 W	22/04/2013	0428 UTC	4295 m	350 16 kn			1017.8 mb	13.5 C	12.0 C				062

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.33	13.33	33.110	24.865	307.7	0.000	6.13	267.0	102.9	2.7	0.32	0.1	0.00	0.10	0.37	0.08	0	
2	13.33	13.33	33.110	24.865	307.7	0.006	6.13	267.0	102.9	2.7	0.32	0.1	0.00	0.10	0.37	0.08	2	20
10	13.33	13.32	33.110	24.865	307.9	0.031	6.12	266.6	102.8	2.7	0.32	0.1	0.00	0.11	0.36	0.08	10	19
20	13.31	13.31	33.113	24.871	307.7	0.062	6.11	266.4	102.6	2.7	0.33	0.0	0.00	0.08	0.38	0.08	20	18
30	13.29	13.29	33.118	24.879	307.2	0.092	6.12	266.6	102.7	2.7	0.33	0.0	0.00	0.09	0.39	0.09	30	17
40	13.19	13.19	33.134	24.913	304.3	0.123	6.13	267.2	102.7	2.6	0.33	0.0	0.00	0.06	0.48	0.12	40	16
50	12.88	12.87	33.134	24.975	298.6	0.153	6.14	267.6	102.2	2.4	0.37	0.2	0.03	0.23	0.78	0.23	50	15
60	12.86	12.85	33.138	24.983	298.1	0.183	6.13	267.0	101.9	2.6	0.38	0.4	0.04	0.36	0.63	0.22	60	14
70	12.49	12.48	33.101	25.026	294.3	0.212	6.09	265.3	100.4	3.0	0.42	0.7	0.11	0.46	0.43	0.20	71	13
75 ISL	11.90 D	11.89	33.158 D	25.182	279.4	0.229	6.03	D262.6 D	98.2	4.4	0.54	2.8	0.09	0.34	0.35	0.19	76	
86	11.16	11.15	33.216	25.362	262.5	0.257	5.32	231.7	85.4	7.4	0.80	7.5	0.03	0.07	0.17	0.16	87	12
100	10.14	10.13	33.242	25.560	243.8	0.292	5.14	223.8	80.6	10.7	1.02	11.2	0.00	0.09	0.04	0.06	101	11
121	9.89	9.88	33.451	25.766	224.7	0.341	4.28	186.2	66.8	16.0	1.42	17.4	0.00	0.06	0.03	0.04	122	10
125 ISL	9.77 D	9.75	33.507 D	25.830	218.7	0.352	4.16	D181.3 D	64.9	17.0	1.46	18.1	0.00	0.06	0.03	0.04	126	
140	9.32	9.30	33.658	26.022	200.7	0.382	3.88	168.8	59.9	21.0	1.60	20.7	0.00	0.08	0.01	0.02	141	09
150 ISL	9.21 D	9.19	33.740 D	26.104	193.1	0.404	3.72	D161.8 D	57.3	22.5	1.65	21.6	0.00	0.07	0.01	0.02	151	
170	8.90	8.88	33.815	26.212	183.2	0.439	3.54	154.0	54.2	25.7	1.74	23.3	0.00	0.04	0.00	0.02	171	08
200	8.59	8.57	33.917	26.340	171.5	0.492	3.25	141.5	49.5	29.6	1.85	25.1	0.00	0.11	0.00	0.01	202	07
231	8.01	7.98	33.975	26.475	159.1	0.543	2.86	124.2	42.9	35.9	2.03	27.8	0.00	0.07			233	06
250 ISL	7.71 D	7.68	33.995 D	26.535	153.6	0.577	2.59	D112.5 D	38.6	40.2	2.16	29.5	0.00	0.08			252	
270	7.39	7.36	34.010	26.593	148.3	0.603	2.23	97.1	33.1	44.6	2.29	31.3	0.00	0.10			272	05
300 ISL	7.15 D	7.12	34.032 D	26.644	143.9	0.651	1.87	D 81.3 D	27.6	50.2	2.45	33.4	0.00	0.09			302	
321	6.87	6.84	34.044	26.693	139.4	0.677	1.59	69.0	23.2	54.2	2.57	34.8	0.00	0.09			324	04
380	6.40	6.37	34.120	26.815	128.4	0.756	0.93	40.3	13.4	64.7	2.84	38.0	0.00	0.14			383	03
400 ISL	6.32 D	6.29	34.132 D	26.835	126.7	0.787	0.82	D 35.8 D	11.9	68.4	2.88	38.4	0.00	0.15			403	
440	5.66	5.62	34.104	26.897	120.8	0.831	0.85	36.8	12.0	75.7	2.95	39.3	0.00	0.16			444	02
500 ISL	5.31 D	5.27	34.152 D	26.977	113.7	0.908	0.61	D 26.6 D	8.6	81.2	2.97	39.8	0.00	0.12			504	
515	5.27	5.23	34.160	26.988	112.7	0.918	0.55	23.7	7.7	82.6	2.97	39.9	0.00	0.11			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 80.0 50.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 27.6 N	120 30.0 W	20/04/2013	0700 UTC	32 m	300 20 kn			1017.3 mb	12.2 C	11.3 C				054

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
2	11.07	11.07	33.827	25.850	214.0	0.004	4.70	205.1	75.6	17.1	1.31	15.9	0.11	0.18	8.37	0.51	2	06
6	11.07	11.07	33.829	25.853	213.9	0.006	4.64	202.7	74.7	17.4	1.32	15.9	0.12	0.24	7.86	0.51	6	05
10	11.07	11.07	33.830	25.853	213.9	0.015	4.67	203.6	75.0	20.4	1.35	15.9	0.11	0.24	7.81	0.64	10	03
10	11.07	11.07	33.838	25.859	213.3	0.015											10	04
21	10.87	10.87	33.846	25.902	209.6	0.038	4.24	185.0	67.9	17.3	1.52	17.7	0.11	0.43	5.05	0.58	21	02
30	10.76	10.76	33.859	25.932	207.0	0.057	4.09	178.6	65.4	21.8	1.62	18.9	0.11	0.49	4.81	0.48	30	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 80.0 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 27.0 N	120 31.5 W	20/04/2013	0800 UTC	68 m	300 20 kn			1017.1 mb	12.2 C	11.1 C				055

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	10.70	10.70	33.866	25.945	204.9	0.000	4.22	183.7	67.3	22.7	1.72	19.8	0.11	0.72	1.94	0.39	0	
2	10.70	10.70	33.866	25.945	204.9	0.004	4.22	183.7	67.3	22.7	1.72	19.8	0.11	0.72	1.94	0.39	2	09
5	10.71	10.71	33.865	25.943	205.2	0.010	4.24	184.5	67.7	22.7	1.71	19.6	0.11	0.72	2.07	0.38	5	08
10	10.72	10.72	33.858	25.936	206.0	0.021	4.20	182.8	67.0	22.5	1.70	19.4	0.11	0.76	2.01	0.41	10	06
11	10.72	10.72	33.860	25.938	205.8	0.022											10	07
20	10.69	10.69	33.866	25.949	205.1	0.041	4.17	181.4	66.5	22.8	1.72	19.6	0.11	0.80	1.78	0.28	20	05
30 ISL	10.58 D	10.58	33.883 D	25.981	202.3	0.062	4.09	D177.9 D	65.0	24.6	1.86	21.0	0.11	0.78	1.12	0.31	30	
31	10.64	10.63	33.886	25.975	202.9	0.064	4.06	176.9	64.8	24.8	1.87	21.1	0.11	0.78	1.05	0.32	31	04
41	10.47	10.47	33.895	26.010	199.7	0.084	3.96	172.3	62.9	25.8	1.92	21.9	0.11	0.67	1.14	0.35	41	03
50 ISL	10.38 D	10.37	33.904 D	26.034	197.7	0.102	3.89	D169.1 D	61.6	26.4	1.93	22.3	0.11	0.51	1.46	0.30	50	
51	10.35	10.34	33.904	26.039	197.2	0.104	3.86	168.2	61.2	26.5	1.93	22.3	0.11	0.49	1.50	0.30	51	02
59	10.24	10.23	33.908	26.062	195.3	0.119	3.45	150.3	54.6	27.2	1.97	22.8	0.11	0.47	1.20	0.33	59	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 80.0 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 18.9 N	120 48.4 W	20/04/2013	1106	UTC	809 m	340 25 kn			1016.8 mb	12.3 C	11.3 C				056

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.00	12.00	33.594	25.499	247.3	0.000	5.92	257.7	96.9	7.3	0.86	7.9	0.13	0.75	0.87	0.31	0	
2	12.00	11.99	33.594	25.499	247.4	0.005	5.92	257.7	96.9	7.3	0.86	7.9	0.13	0.75	0.87	0.31	2	22
10	12.00	12.00	33.597	25.500	247.5	0.025	5.94	258.6	97.3	7.3	0.86	7.9	0.13	0.74	1.12	0.25	10	20
10	12.00	12.00	33.597	25.501	247.4	0.026											10	21
15	12.00	12.00	33.600	25.503	247.3	0.037	5.92	257.7	96.9	7.2	0.86	7.9	0.13	0.75	0.88	0.31	15	19
20 ISL	11.97 D	11.97	33.597 D	25.506	247.1	0.050	5.88	D255.9 D	96.2	7.3	0.86	7.9	0.13	0.76	0.79	0.30	20	
21	11.92	11.91	33.603	25.522	245.7	0.052	5.88	256.2	96.2	7.3	0.86	7.9	0.13	0.76	0.77	0.30	21	18
30 ISL	11.66 D	11.66	33.560 D	25.536	244.6	0.075	5.63	D245.2 D	91.5	8.3	0.91	8.9	0.14	0.76	0.62	0.26	30	
31	11.56	11.56	33.565	25.559	242.5	0.077	5.59	243.5	90.7	8.4	0.92	9.0	0.14	0.76	0.60	0.26	31	17
41	10.74	10.74	33.571	25.711	228.2	0.100	4.70	204.8	75.0	14.3	1.28	14.9	0.12	0.72	0.30	0.21	41	16
50	10.79	10.78	33.710	25.812	218.8	0.120	4.49	195.5	71.7	17.0	1.50	16.9	0.16	1.11	0.43	0.64	50	15
60	10.42	10.42	33.732	25.892	211.4	0.142	4.00	174.0	63.3	19.7	1.60	18.9	0.15	0.78	0.41	0.49	60	14
70	9.96	9.96	33.774	26.004	201.0	0.162	3.37	146.8	52.9	23.7	1.77	21.6	0.12	0.25	0.26	0.46	71	13
75 ISL	9.60 D	9.59	33.811 D	26.093	192.5	0.173	3.02	D131.6 D	47.1	25.3	1.84	22.9	0.10	0.19	0.20	0.45	76	
86	9.22	9.21	33.854	26.189	183.6	0.193	2.64	115.0	40.8	28.8	1.98	25.6	0.05	0.05	0.07	0.42	87	12
100	9.03	9.02	33.912	26.265	176.7	0.218	2.56	111.3	39.3	30.9	2.02	26.3	0.03	0.04	0.03	0.26	101	11
120	8.98	8.97	33.987	26.333	170.7	0.253	2.14	93.2	32.9	34.1	2.16	27.6	0.03	0.04	0.03	0.27	121	10
125 ISL	8.96 D	8.95	33.985 D	26.334	170.7	0.263	2.14	D 93.1 D	32.9	34.7	2.20	27.9	0.03	0.05	0.03	0.27	126	
139	8.93	8.92	34.049	26.389	165.7	0.285	1.79	77.7	27.4	36.5	2.30	28.6	0.03	0.08	0.03	0.26	140	09
150 ISL	8.85 D	8.83	34.069 D	26.418	163.2	0.305	1.69	D 73.4 D	25.9	38.2	2.36	29.0	0.03	0.08	0.03	0.25	151	
170	8.60	8.58	34.116	26.495	156.3	0.335	1.43	62.3	21.8	41.3	2.46	29.7	0.04	0.08	0.03	0.24	171	08
199	8.37	8.35	34.149	26.557	150.9	0.379	1.26	54.7	19.1	44.6	2.54	31.3	0.03	0.05	0.02	0.20	201	07
200 ISL	8.37 D	8.35	34.155 D	26.561	150.5	0.383	1.22	D 53.0 D	18.5	44.7	2.54	31.3	0.03	0.05	0.02	0.19	202	
230	8.17	8.14	34.181	26.613	146.2	0.425	1.11	48.1	16.7	47.4	2.64	32.0	0.03	0.03			232	06
250 ISL	8.06 D	8.03	34.192 D	26.639	144.0	0.457	1.03	D 44.6 D	15.4	49.6	2.69	32.6	0.02	0.03			252	
271	7.84	7.81	34.208	26.683	140.1	0.484	0.92	39.9	13.8	51.9	2.74	33.2	0.00	0.04			273	05
300 ISL	7.62 D	7.59	34.228 D	26.732	135.9	0.528	0.78	D 33.9 D	11.6	55.2	2.82	34.0	0.00	0.05			302	
320	7.49	7.46	34.235	26.756	133.9	0.551	0.72	31.2	10.7	57.4	2.87	34.5	0.00	0.06			323	04
381	7.06	7.02	34.263	26.840	126.7	0.631	0.57	24.7	8.4	63.4	2.99	35.8	0.00	0.07			384	03
400 ISL	6.85 D	6.82	34.232 D	26.845	126.4	0.660	0.58	D 25.4 D	8.6	65.4	3.02	36.3	0.00	0.08			403	
442	6.60	6.56	34.262	26.903	121.3	0.707	0.46	20.1	6.7	69.8	3.09	37.3	0.00	0.11			446	02
500 ISL	6.22 D	6.17	34.298 D	26.982	114.4	0.781	0.35	D 15.2 D	5.0	75.9	3.17	38.3	0.00	0.08			504	
514	6.15	6.10	34.301	26.993	113.4	0.791	0.33	14.2	4.7	77.4	3.19	38.5	0.00	0.07			518	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 80.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 9.1 N	121 10.0 W	20/04/2013	1616	UTC	2288 m	330 27 kn	340 07 06	0	1016.3 mb	13.1 C	11.8 C	18 m	0/8		057

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.88	11.88	33.594	25.521	245.2	0.000	5.86	255.1	95.7	7.5	0.92	8.6	0.18	0.98	0.77	0.28	0	
2 A	11.88	11.87	33.594	25.522	245.2	0.005	5.86	255.1	95.7	7.5	0.92	8.6	0.18	0.98	0.77	0.28	2	22
10 A	11.86	11.86	33.607	25.534	244.3	0.025	5.85	254.8	95.6	7.5	0.92	8.6	0.18	1.00	0.79	0.28	10	20
10	11.86	11.86	33.601	25.529	244.7	0.025											10	21
14 A	11.87	11.86	33.595	25.525	245.2	0.034	5.86	255.3	95.8	7.4	0.91	8.6	0.18	0.96	0.79	0.27	14	19
20 ISL	11.87 D	11.86	33.595 D	25.524	245.4	0.049	5.88	D255.9 D	96.0	7.4	0.91	8.6	0.18	0.95	0.77	0.29	20	
23	11.86	11.86	33.595	25.525	245.4	0.056	5.86	255.2	95.7	7.4	0.91	8.6	0.18	0.95	0.76	0.30	23	18
30 A	11.86	11.86	33.596	25.527	245.5	0.074	5.85	254.7	95.5	7.4	0.92	8.6	0.18	0.98	0.75	0.30	30	17
40	11.86	11.86	33.595	25.527	245.8	0.098	5.84	254.3	95.4	7.4	0.92	8.5	0.18	1.01	0.83	0.31	40	16
50 ISL	11.86 D	11.86	33.596 D	25.527	246.0	0.124	5.86	D255.0 D	95.6	7.4	0.92	8.6	0.18	1.03	0.80	0.30	50	
52 A	11.86	11.85	33.595	25.527	246.1	0.128	5.87	255.5	95.8	7.4	0.92	8.6	0.18	1.03	0.80	0.30	52	15
62 A	11.41	11.40	33.570	25.592	240.1	0.152	5.59	243.4	90.4	8.4	0.97	9.4	0.18	0.97	0.52	0.26	63	14
75	10.16	10.15	33.577	25.817	218.9	0.182	4.09	178.2	64.4	17.5	1.46	18.0	0.17	0.29	0.17	0.27	76	13
85	10.25	10.24	33.685 D	25.886	212.6	0.205	3.93	171.1	62.0	18.7	1.56	19.1	0.19	0.34	0.23	0.40	86	12
99	9.49	9.47	33.678	26.009	201.0	0.232	3.40	148.2	52.8	23.1	1.73	22.5	0.04	0.08	0.05	0.26	100	11
100 ISL	9.47 D	9.46	33.688 D	26.019	200.1	0.236	3.39	D147.3 D	52.5	23.4	1.74	22.6	0.04	0.08	0.05	0.25	101	
119	8.96	8.94	33.845	26.225	180.9	0.271	3.01	130.8	46.1	28.3	1.91	25.3	0.02	0.11	0.02	0.13	120	10
125 ISL	8.90 D	8.88	33.862 D	26.248	178.8	0.284	3.00	D130.3 D	45.9	29.5	1.96	25.8	0.02	0.11	0.02	0.14	126	
140	8.82	8.81	33.953	26.331	171.3	0.308	2.47	107.4	37.8	32.7	2.09	27.1	0.02	0.10	0.01	0.16	141	09
150 ISL	8.66 D	8.65	33.994 D	26.388	166.0	0.327	2.19	D 95.3 D	33.4	34.4	2.16	27.9	0.02	0.12	0.01	0.14	151	
172	8.40	8.38	34.039	26.465	159.1	0.360	2.02	87.9	30.7	38.2	2.30	29.6	0.02	0.15	0.01	0.11	173	08
200	8.13	8.11	34.075	26.535	152.9	0.404	1.69	73.7	25.5	42.2	2.43	31.0	0.02	0.09	0.01	0.09	202	07
230	7.89	7.87	34.098	26.588	148.3	0.449	1.49	64.8	22.4	45.8	2.54	32.2	0.00	0.08			232	06
250 ISL	7.84 D	7.81	34.123 D	26.617	146.0	0.482	1.33	D 58.0 D	20.0	47.7	2.60	32.8	0.00	0.12			252	
271	7.70	7.67	34.137	26.648	143.4	0.509	1.20	52.2	17.9	49.8	2.67	33.4	0.00	0.17			273	05
300 ISL	7.48 D	7.45	34.165 D	26.703	138.5	0.554	1.01	D 44.1 D	15.1	54.8	2.81	34.7	0.00	0.21			302	
320	7.18	7.15	34.185	26.760	133.2	0.577	0.81	35.4	12.0	58.3	2.91	35.6	0.00	0.23			323	04
380	6.44	6.41	34.206	26.877	122.6	0.654	0.55	24.1	8.0	68.8	3.09	38.0	0.00	0.16			383	03
400 ISL	6.37 D	6.33	34.218 D	26.897	121.0	0.683	0.52	D 22.5 D	7.5	71.0	3.13	38.3	0.00	0.21			403	
440	6.13	6.09	34.252	26.956	115.8	0.726	0.39	16.9	5.6	75.3	3.21	39.0	0.00	0.30			444	02
500 ISL	5.77 D	5.72	34.304 D	27.042	108.1	0.799	0.28	D 12.1 D	4.0	82.3	3.29	40.1	0.00	0.24			504	
514	5.66	5.61	34.317	27.066	105.9	0.808	0.24	10.3	3.4	83.9	3.31	40.4	0.00	0.23			518	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 80.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 49.1 N	121 50.7 W	20/04/2013	2159	UTC	3653 m	330 24 kn	310 07 08	0	1016.9 mb	13.6 C	12.1 C	14 m	0/8		058

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.95	12.95	33.320	25.103	284.9	0.000	6.09	265.9	101.7	3.9	0.54	2.6	0.10	0.26	0.30	0.08	0	
2	12.95	12.94	33.320	25.103	285.0	0.006	6.09	265.9	101.7	3.9	0.54	2.6	0.10	0.26	0.30	0.08	2	20
9	12.91	12.91	33.326	25.115	284.1	0.026	6.08	265.4	101.4	3.9	0.54	2.5	0.10	0.24	0.31	0.08	9	19
10 ISL	12.94 D	12.93	33.316 D	25.102	285.3	0.029	6.09 D	265.4 D	101.6	3.9	0.54	2.5	0.10	0.24	0.31	0.08	10	
20	12.67	12.67	33.299	25.141	281.9	0.057	6.05	264.1	100.4	4.0	0.55	2.6	0.11	0.19	0.32	0.10	20	18
30 ISL	12.58 D	12.58	33.283 D	25.147	281.7	0.086	6.03 D	262.7 D	99.8	4.0	0.56	2.7	0.13	0.21	0.32	0.12	30	
33	12.54	12.54	33.279	25.152	281.3	0.093	6.02	262.7	99.5	4.0	0.56	2.7	0.13	0.21	0.32	0.13	33	17
39	12.24	12.24	33.250	25.187	278.0	0.110	5.94	259.1	97.5	4.4	0.58	3.1	0.15	0.13	0.32	0.16	39	16
50	12.13	12.12	33.393	25.320	265.7	0.140	5.94	259.1	97.4	5.0	0.74	5.1	0.16	0.49	0.36	0.15	50	15
60	12.25	12.24	33.473	25.361	262.1	0.167	6.04	263.5	99.4	5.0	0.77	5.1	0.18	0.77	0.37	0.17	60	14
73	12.23	12.22	33.483	25.372	261.4	0.201	6.04	263.3	99.2	5.1	0.77	5.2	0.19	0.83	0.27	0.11	74	13
75 ISL	12.22 D	12.21	33.489 D	25.378	260.9	0.208	5.99 D	260.9 D	98.5	5.5	0.79	5.7	0.18	0.74	0.25	0.11	76	
85	11.33	11.32	33.359	25.444	254.8	0.232	5.48	239.0	88.3	7.6	0.88	8.0	0.12	0.31	0.16	0.12	86	12
100	10.02	10.01	33.426	25.723	228.3	0.268	4.49	196.0	70.4	14.1	1.27	14.8	0.02	0.00	0.04	0.11	101	11
120	9.24	9.22	33.693	26.061	196.5	0.310	3.84	167.4	59.2	21.6	1.63	20.5	0.00	0.00	0.02	0.06	121	10
125 ISL	9.16 D	9.15	33.761 D	26.127	190.4	0.322	3.50 D	152.2 D	53.9	23.2	1.71	21.7	0.00	0.00	0.02	0.06	126	
140	9.02	9.00	33.851	26.221	181.7	0.348	2.98	130.1	45.9	28.2	1.96	25.2	0.00	0.00	0.01	0.06	141	09
150 ISL	8.87 D	8.85	33.920 D	26.299	174.5	0.368	2.69 D	117.1 D	41.3	30.1	2.02	26.1	0.00	0.00	0.01	0.06	151	
172	8.62	8.60	33.978	26.383	166.9	0.403	2.41	104.9	36.7	34.4	2.15	28.1	0.00	0.00	0.01	0.06	173	08
200 ISL	8.20 D	8.18	34.022 D	26.482	157.9	0.452	2.19 D	95.4 D	33.1	38.1	2.23	29.4	0.00	0.00	0.00	0.05	202	
203	8.18	8.16	34.021	26.485	157.7	0.453	2.20	95.9	33.2	38.5	2.24	29.5	0.00	0.00	0.00	0.04	205	07
238	7.89	7.86	34.092	26.585	148.8	0.507	1.56	68.2	23.4	45.2	2.47	32.0	0.00	0.00			240	06
250 ISL	7.66 D	7.63	34.082 D	26.611	146.4	0.529	1.61 D	70.0 D	24.0	46.6	2.49	32.2	0.00	0.00			252	
270	7.50	7.47	34.083	26.634	144.5	0.554	1.56	67.9	23.1	48.9	2.52	32.4	0.00	0.00			272	05
300 ISL	7.13 D	7.10	34.093 D	26.695	139.0	0.601	1.36 D	59.2 D	20.0	53.7	2.63	34.2	0.00	0.00			302	
322	6.89	6.86	34.105	26.737	135.2	0.627	1.18	51.6	17.3	57.1	2.71	35.5	0.00	0.00			325	04
381	6.34	6.30	34.123	26.826	127.3	0.704	0.87	38.0	12.6	66.6	2.91	37.8	0.00	0.00			384	03
400 ISL	6.22 D	6.19	34.136 D	26.851	125.2	0.734	0.80 D	34.7 D	11.5								403	
437	6.16	6.12	34.181 D	26.895	121.5	0.780	0.60 D	26.0 D	8.6								441	02
500 ISL	5.92 D	5.88	34.270 D	26.997	112.6	0.854	0.34 D	14.6 D	4.8								504	
516	5.78	5.74	34.292	27.032	109.4	0.865	0.27	11.8	3.9	82.8	3.16	39.8	0.00	0.00			520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 80.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.4 N	122 32.6 W	21/04/2013	0614	UTC	4010 m	340 26 kn			1018.4 mb	12.9 C	11.7 C				059

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.61	13.61	33.261	24.923	302.1	0.000	6.06	264.1	102.5	3.3	0.35	0.0	0.00	0.06	0.46	0.12	0	
2	13.61	13.61	33.261	24.923	302.1	0.006	6.06	264.1	102.5	3.3	0.35	0.0	0.00	0.06	0.46	0.12	2	20
10 ISL	13.62 D	13.62	33.266 D	24.927	302.0	0.031	6.05 D	263.5 D	102.3	3.3	0.34	0.1	0.00	0.03	0.43	0.12	10	
11	13.62	13.62	33.257	24.920	302.7	0.033	6.05	263.6	102.3	3.3	0.34	0.1	0.00	0.03	0.43	0.12	11	19
20	13.61	13.61	33.257	24.921	302.9	0.061	6.03	262.9	102.0	3.3	0.35	0.0	0.00	0.00	0.45	0.12	20	18
30	13.62	13.61	33.258	24.922	303.1	0.091	6.02	262.4	101.8	3.2	0.34	0.0	0.00	0.00	0.43	0.13	30	17
40	13.61	13.60	33.254	24.922	303.5	0.121	6.04	263.1	102.1	3.2	0.34	0.0	0.00	0.00	0.44	0.13	40	16
50	13.61	13.60	33.263	24.928	303.1	0.151	6.03	262.8	101.9	3.2	0.34	0.0	0.00	0.00	0.45	0.12	50	15
60	13.12	13.11	33.216	24.991	297.4	0.181	5.78	252.0	96.8	4.4	0.52	2.5	0.08	0.02	0.40	0.22	60	14
70	11.75	11.74	33.281	25.305	267.7	0.210	5.80	252.6	94.3	5.8	0.71	5.2	0.19	0.00	0.30	0.20	71	13
75 ISL	11.61 D	11.60	33.311 D	25.355	263.0	0.224	5.78 D	251.9 D	93.7	6.3	0.76	6.1	0.15	0.01	0.24	0.17	76	
84	11.34	11.33	33.307	25.402	258.8	0.247	5.47	238.3	88.2	7.2	0.86	7.8	0.07	0.02	0.13	0.11	85	12
100 ISL	10.65 D	10.63	33.408 D	25.603	239.9	0.288	4.63 D	201.5 D	73.5	11.2	1.12	12.4	0.03	0.00	0.08	0.08	101	
101	10.61	10.59	33.393	25.598	240.3	0.289	4.72	205.5	74.9	11.4	1.14	12.7	0.03	0.00	0.07	0.08	102	11
120	9.81	9.79	33.551	25.858	216.0	0.332	4.03	175.3	62.9	17.6	1.51	18.5	0.03	0.00	0.02	0.04	121	10
125 ISL	9.68 D	9.67	33.604 D	25.920	210.1	0.344	3.95 D	172.0 D	61.5	18.7	1.56	19.3	0.03	0.00	0.02	0.04	126	
140	9.29	9.27	33.701	26.061	197.0	0.373	3.72	162.0	57.5	22.0	1.69	21.6	0.02	0.00	0.01	0.02	141	09
150 ISL	9.09 D	9.07	33.769 D	26.146	189.1	0.394	3.45 D	150.3 D	53.1	23.9	1.76	22.7	0.01	0.00	0.01	0.02	151	
171	8.80	8.78	33.863	26.265	178.1	0.431	3.22	140.1	49.2	27.9	1.91	24.9	0.00	0.00	0.00	0.02	172	08
200	8.43	8.41	33.944	26.387	167.0	0.481	2.92	127.1	44.3	32.1	2.05	26.8	0.00	0.00	0.00	0.02	202	07
230	7.87	7.85	33.979	26.498	156.8	0.530	2.67	116.3	40.1	38.1	2.18	28.9	0.00	0.00			232	06
250 ISL	7.51 D	7.48	34.007 D	26.572	150.0	0.563	2.32 D	101.1 D	34.5	42.6	2.33	30.6	0.00	0.00			252	
270	7.33	7.31	34.022	26.609	146.7	0.590	1.98	86.2	29.3	47.0	2.47	32.2	0.00	0.00			272	05
300 ISL	7.17 D	7.14	34.074 D	26.674	141.0	0.636	1.43 D	62.0 D	21.0	52.0	2.63	34.2	0.00	0.00			302	
320	6.95	6.92	34.081	26.710	137.8	0.661	1.32	57.2	19.3	55.4	2.73	35.5	0.00	0.00			323	04
380	6.43	6.39	34.122	26.814	128.5	0.741	0.89	38.7	12.9	64.6	2.94	37.8	0.00	0.00			383	03
400 ISL	6.28 D	6.24	34.139 D	26.846	125.7	0.771	0.80 D	34.9 D	11.6	67.2	3.00	38.3	0.00	0.00			403	
440	6.07	6.03	34.172	26.900	121.0	0.816	0.62	27.0	8.9	72.2	3.11	39.3	0.00	0.00			444	02
500 ISL	5.76 D	5.72	34.239 D	26.992	112.8	0.891	0.39 D	17.0 D	5.6	79.4	3.20	39.8	0.00	0.02			504	
515	5.68	5.64	34.241	27.003	111.9	0.903	0.35	15.3	5.0	81.2	3.22	39.9	0.00	0.02			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 80.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 9.2 N	123 13.1 W	21/04/2013	1306	UTC	4254 m	330 20 kn			1017.9 mb	12.2 C	11.9 C				060

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.96	13.96	33.238	24.835	310.5	0.000	6.01	262.4	102.3	2.8	0.30	0.0	0.00	0.05	0.22	0.06	0	
4	13.96	13.96	33.238	24.835	310.6	0.012	6.01	262.4	102.3	2.8	0.30	0.0	0.00	0.05	0.22	0.06	4	20
10	13.96	13.95	33.241	24.838	310.5	0.031	5.97	261.0	101.7	2.8	0.29	0.0	0.00	0.03	0.22	0.04	10	19
20 ISL	13.95 D	13.95	33.240 D	24.839	310.7	0.062	5.96	D259.6	D101.4	2.8	0.30	0.0	0.00	0.01	0.22	0.05	20	
25	13.95	13.95	33.246	24.844	310.4	0.078	5.96	260.5	101.5	2.8	0.30	0.0	0.00	0.00	0.22	0.05	25	18
30 ISL	13.95 D	13.95	33.239 D	24.839	311.1	0.094	5.96	D259.9	D101.5	2.8	0.30	0.0	0.00	0.00	0.22	0.06	30	
40	13.96	13.95	33.248	24.845	310.7	0.124	5.98	261.4	101.9	2.8	0.29	0.0	0.00	0.00	0.21	0.07	40	17
50 ISL	13.95 D	13.95	33.238 D	24.839	311.6	0.157	5.96	D259.9	D101.5	2.7	0.29	0.0	0.00	0.03	0.23	0.05	50	
52	13.96	13.95	33.244	24.843	311.3	0.162	5.97	260.6	101.6	2.7	0.29	0.0	0.00	0.04	0.23	0.05	52	16
62	13.76	13.75	33.234	24.876	308.5	0.193	5.97	260.7	101.2	2.8	0.29	0.0	0.00	0.06	0.22	0.06	63	15
75 ISL	12.98 D	12.97	33.149 D	24.967	300.1	0.234	5.96	D259.7	D 99.4	2.9	0.32	0.0	0.04	0.04	0.36	0.17	76	
76	12.83	12.82	33.137 D	24.987	298.2	0.237	6.02	262.8	100.0	2.9	0.32	0.0	0.04	0.04	0.37	0.18	77	14
88	12.25	12.23	33.153 D	25.113	286.5	0.272	5.95	259.9	97.6	3.9	0.48	1.8	0.31	0.02	0.31	0.19	89	13
100 ISL	12.03 D	12.02	33.192 D	25.185	279.9	0.307	5.83	D253.9	D 95.3	4.0	0.53	2.4	0.15	0.21	0.27	0.12	101	
101	11.60	11.59	33.166	25.245	274.1	0.307	6.04	263.8	97.8	4.0	0.53	2.5	0.14	0.23	0.26	0.12	102	12
112	11.09	11.08	33.186 D	25.352	264.1	0.339	5.58	243.6	89.3	6.5	0.71	6.1	0.04	0.00	0.08	0.08	113	11
125	10.36	10.35	33.415 D	25.658	235.2	0.372	5.00	218.3	78.9	10.0	0.97	10.6	0.02	0.02	0.08	0.06	126	10
140	10.05	10.03	33.474 D	25.758	226.0	0.407	4.59	200.3	72.0	13.5	1.21	14.4	0.00	0.00	0.04	0.02	141	09
150 ISL	9.61 D	9.59	33.571 D	25.908	211.8	0.429	4.28	D186.2	D 66.5	16.0	1.34	16.4	0.00	0.00	0.03	0.02	151	
172	9.28	9.26	33.668	26.036	200.0	0.471	3.83	167.2	59.1	21.3	1.62	20.9	0.00	0.00	0.01	0.01	173	08
199	8.73	8.70	33.902 D	26.308	174.6	0.525	3.08	134.5	47.0	29.4	1.91	25.3	0.00	0.00	0.01	0.02	201	07
200 ISL	8.71 D	8.68	33.906 D	26.314	174.0	0.527	3.07	D133.7	D 46.9	29.5	1.91	25.3	0.00	0.00	0.01	0.02	202	
231	8.24	8.21	33.947	26.419	164.5	0.576	3.09	135.0	46.7	33.3	1.94	26.2	0.00	0.02			233	06
250 ISL	7.91 D	7.88	33.986 D	26.499	157.2	0.610	2.57	D111.7	D 38.5	38.0	2.10	28.2	0.00	0.01			252	
271	7.61	7.59	33.996	26.549	152.6	0.639	2.26	98.6	33.6	43.1	2.28	30.5	0.00	0.00			273	05
300 ISL	7.40 D	7.37	34.059 D	26.631	145.3	0.686	1.66	D 72.2	D 24.6	48.4	2.43	32.4	0.00	0.00			302	
321	7.08	7.04	34.039	26.660	142.6	0.712	1.64	71.4	24.1	52.2	2.54	33.7	0.00	0.00			324	04
380	6.43	6.40	34.068	26.770	132.6	0.793	1.16	50.5	16.8	62.7	2.77	36.7	0.00	0.00			383	03
400 ISL	6.28 D	6.24	34.094 D	26.811	129.0	0.824	1.02	D 44.2	D 14.7	65.0	2.84	37.2	0.00	0.00			403	
440	6.42	6.38	34.180	26.861	125.0	0.870	0.63	27.4	9.1	69.4	2.97	38.1	0.00	0.00			444	02
500 ISL	5.75 D	5.70	34.234 D	26.989	113.0	0.947	0.40	D 17.2	D 5.7	79.9	3.10	39.4	0.00	0.00			504	
515	5.65	5.61	34.222	26.992	112.9	0.959	0.40	17.4	5.7	82.6	3.13	39.7	0.00	0.00			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 80.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 50.6 N	123 52.9 W	21/04/2013	2012	UTC	4379 m	340 18 kn	350 07 06	2	1019.3 mb	14.0 C	12.7 C	19 m	8/8	ST	061

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.12	14.12	33.260	24.819	312.0	0.000	5.97	260.8	102.0	2.8	0.31	0.0	0.00	0.06	0.17	0.04	0	
2 A	14.12	14.12	33.260	24.819	312.0	0.006	5.97	260.8	102.0	2.8	0.31	0.0	0.00	0.06	0.17	0.04	2	22
10 ISL	14.12 D	14.11	33.254 D	24.815	312.7	0.032	5.95	D259.4	D101.7	2.8	0.31	0.0	0.00	0.03	0.17	0.04	10	
11 A	14.11	14.11	33.253	24.816	312.6	0.034	5.95	260.1	101.7	2.8	0.31	0.0	0.00	0.03	0.17	0.04	11	21
16 A	14.10	14.10	33.254	24.818	312.6	0.050	5.95	260.0	101.6	2.8	0.31	0.0	0.00	0.03	0.17	0.05	16	20
20 ISL	14.10 D	14.10	33.254 D	24.819	312.7	0.063	5.96	D259.7	D101.8	2.8	0.31	0.0	0.00	0.03	0.17	0.05	20	
29 A	14.08	14.07	33.253	24.824	312.4	0.091	5.96	260.2	101.7	2.8	0.31	0.0	0.00	0.02	0.17	0.04	29	19
30 ISL	14.08 D	14.07	33.254 D	24.825	312.4	0.094	5.96	D259.6	D101.7	2.8	0.31	0.0	0.00	0.02	0.17	0.04	30	
40	14.07	14.06	33.254 D	24.828	312.4	0.126	5.96	260.1	101.6	2.8	0.31	0.0	0.00	0.02	0.18	0.05	40	18
47	14.06	14.06	33.254	24.828	312.6	0.147	5.96	260.2	101.6	2.8	0.31	0.0	0.00	0.02	0.19	0.05	47	17
50 ISL	14.06 D	14.06	33.254 D	24.829	312.6	0.158	5.96	D259.7	D101.7	2.7	0.31	0.0	0.00	0.02	0.19	0.05	50	
55 A	14.06	14.05	33.254	24.831	312.6	0.172	5.97	260.9	101.9	2.7	0.31	0.0	0.00	0.02	0.19	0.05	55	16
65 A	13.96	13.95	33.251	24.848	311.3	0.203	5.96	260.4	101.5	2.7	0.31	0.0	0.00	0.03	0.22	0.06	66	15
74	13.63	13.62	33.208	24.884	308.0	0.231	5.97	261.0	101.0	2.7	0.32	0.0	0.00	0.04	0.20B	0.26B	75	14
75 ISL	13.60 D	13.59	33.201 D	24.883	308.2	0.236	6.00	D261.3	D101.3	2.7	0.32	0.0	0.00	0.04	0.22	0.25	76	
85	13.55	13.54	33.195	24.889	307.9	0.265	5.99	261.6	101.0	2.7	0.33	0.0	0.00	0.09	0.36	0.14	86	13
94	13.20	13.19	33.188	24.955	301.9	0.292	5.98	261.2	100.2	2.8	0.34	0.0	0.00	0.15	0.32	0.15	95	12
100 ISL	13.07 D	13.05	33.172 D	24.970	300.5	0.313	5.98	D260.5	D 99.9	2.9	0.36	0.2	0.05	0.20	0.28	0.14	101	
109	12.74	12.73	33.135	25.005	297.4	0.337	5.96	260.4	98.9	3.1	0.40	0.4	0.12	0.28	0.22	0.12	110	11
123	12.11	12.09	33.119	25.115	287.2	0.378	5.84	255.0	95.5	4.2	0.54	2.3	0.29	0.06	0.10	0.07	124	10
125 ISL	12.04 D	12.02	33.131 D	25.137	285.1	0.387	5.72	D249.3	D 93.5	4.4	0.55	2.6	0.27	0.06	0.10	0.07	126	
146	11.53	11.51	33.201	25.286	271.4	0.442	5.52	241.1	89.2	6.1	0.71	5.5	0.02	0.04	0.05	0.05	147	09
150 ISL	11.35 D	11.33	33.238 D	25.347	265.6	0.456	5.40	D235.3	D 87.0	6.9	0.78	6.6	0.02	0.04	0.05	0.05	151	
170	10.51	10.49	33.429	25.645	237.5	0.503	4.78	208.8	75.7	11.1	1.11	12.1	0.02	0.05	0.05	0.05	171	08
199	9.20	9.18	33.697	26.073	197.1	0.566	3.91	170.7	60.2	21.5	1.64	20.6	0.00	0.04	0.00	0.02	201	07
200 ISL	9.20 D	9.18	33.703 D	26.078	196.6	0.572	3.88	D168.8	D 59.8	21.8	1.65	20.7	0.00	0.04	0.00	0.02	202	
230	8.65	8.62	33.902	26.322	173.9	0.624	3.40	148.4	51.8	28.6	1.87	24.3	0.00	0.04			232	06
250 ISL	8.38 D	8.36	33.951 D	26.401	166.7	0.663	3.12	D135.9	D 47.3	31.9	1.97	25.7	0.00	0.04			252	
271	8.04	8.01	33.973	26.470	160.4	0.692	2.94	128.2	44.2	35.3	2.08	27.2	0.00	0.05			273	05
300 ISL	7.59 D	7.56	33.993 D	26.551	152.9	0.743	2.56	D111.6	D 38.2	41.3	2.28	29.6	0.00	0.05			302	
320	7.40	7.37	34.015	26.596	148.9	0.768	2.22	97.1	33.0	45.4	2.42	31.3	0.00	0.05			323	04
370	6.80	6.77	34.042	26.700	139.4	0.840	1.66	72.4	24.2	54.6	2.65	34.5	0.00	0.03			373	03
400 ISL	6.39 D	6.35	34.056 D	26.767	133.2	0.887	1.34	D 58.5	D 19.5	60.5	2.78	36.1	0.00	0.04			403	
440	6.04	6.00	34.092	26.840	126.6	0.933	0.99	43.0	14.2	68.5	2.96	38.3	0.00	0.05			444	02
500 ISL	5.59 D	5.55	34.146 D	26.938	117.6	1.014	0.72	D 31.4	D 10.3	76.4	3.06	39.3	0.00	0.06			504	
515	5.49	5.44	34.145 D	26.951	116.5	1.032	0.67	D 29.1	D 9.5	78.4	3.08	39.5	0.00	0.06			519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
B) SECOND FLUOROMETER READING NOT RECORDED CHLOROPHYLL AND PHAEOPIGMENT CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 81.7 43.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 22.8 N	119 48.2 W	16/04/2013	1114 UTC	58 m	300 21 kn			1012.7 mb	12.1 C	11.1 C				040

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.19	12.19	33.747	25.580	239.6	0.000	5.55	241.9	91.4	7.9	0.89	8.1	0.16	0.85	8.87	2.12	0	
2	12.19	12.19	33.747	25.580	239.7	0.005	5.55	241.9	91.4	7.9	0.89	8.1	0.16	0.85	8.87	2.12	2	07
5	12.19	12.19	33.746	25.580	239.7	0.012	5.55	241.9	91.4	7.9	0.87	8.1	0.16	1.01	9.02	1.93	5	06
10	12.20	12.20	33.746	25.578	240.0	0.024	5.55	241.6	91.3	7.8	0.87	8.1	0.16	0.85	9.01	1.86	10	05
20	11.74	11.73	33.746	25.666	232.0	0.048	4.82	209.9	78.6	11.6	1.11	11.2	0.16	0.95	4.75	1.29	20	04
30	10.54	10.54	33.813	25.934	206.7	0.070	2.85	123.9	45.2	24.9	1.85	21.6	0.27	0.45	0.47	0.62	30	03
40	10.41	10.41	33.831	25.971	203.4	0.090	2.57	112.0	40.8	27.2	1.90	22.0	0.27	0.75	0.52	0.53	40	02
50	10.35	10.35	33.835	25.985	202.4	0.110	2.56	111.5	40.5	27.7	1.94	22.3	0.25	0.71	0.45	0.54	50	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 81.8 46.9

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 16.7 N	120 3.0 W	16/04/2013	1721 UTC	576 m	280 20 kn	280 04 06	0	1016.2 mb	11.0 C	9.0 C	07 m	0/8		041

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	10.58	10.58	33.928	26.016	198.2	0.000	4.60	200.1	73.2	19.4	1.45	17.0	0.18	0.21	6.73	1.41	0	
2 A	10.58	10.58	33.928	26.016	198.2	0.004	4.60	200.1	73.2	19.4	1.45	17.0	0.18	0.21	6.73	1.41	2	24
4 A	10.59	10.59	33.928	26.014	198.5	0.008	4.64	201.8	73.8	19.1	1.41	16.8	0.18	0.19	6.54	1.53	4	22
6 A	10.59	10.59	33.927	26.013	198.6	0.012	4.59	199.6	73.0	19.3	1.42	16.9	0.18	0.18	6.98	1.60	6	23
10 ISL	10.59 D	10.59	33.926 D	26.012	198.8	0.020	4.66	D202.6 D	74.1	19.0	1.41	16.7	0.18	0.17	6.78	1.47	10	
11 A	10.58	10.58	33.925	26.013	198.7	0.022	4.61	200.8	73.4	19.0	1.41	16.7	0.18	0.17	6.72	1.44	11	21
20 A	10.51	10.51	33.930	26.030	197.3	0.040	4.46	194.2	70.9	19.5	1.46	17.3	0.18	0.19	6.99	1.49	20	20
24 A	10.48	10.48	33.929	26.035	197.0	0.048	4.38	190.4	69.5	19.9	1.47	17.6	0.17	0.20	6.91	1.61	24	19
30 ISL	10.39 D	10.39	33.936 D	26.056	195.2	0.060	4.12	D179.5 D	65.4	20.9	1.53	18.5	0.17	0.22	6.43	1.25	30	
31	10.38	10.38	33.937	26.059	194.9	0.061	4.15	180.4	65.7	21.1	1.54	18.6	0.17	0.22	6.35	1.20	31	18
40	9.85	9.84	33.986	26.188	182.8	0.078	2.75	119.6	43.1	28.1	1.91	23.7	0.11	0.13	3.68	0.81	40	17
49	9.32	9.32	34.042	26.318	170.6	0.094	1.66	72.4	25.8	35.4	2.27	28.6	0.05	0.05	0.10	0.33	49	16
50 ISL	9.29 D	9.28	34.044 D	26.325	170.0	0.097	1.64	D 71.5 D	25.4	35.4	2.27	28.6	0.05	0.05	0.09	0.33	50	
75	9.20	9.19	34.080	26.369	166.4	0.138	1.57	68.1	24.2	36.7	2.31	29.1	0.04	0.04	0.04	0.29	76	15
100	9.03	9.02	34.106	26.417	162.3	0.179	1.41	61.1	21.6	39.2	2.38	29.9	0.04	0.07	0.03	0.28	101	14
119	8.83	8.82	34.134	26.471	157.6	0.210	1.31	57.2	20.2	41.6	2.44	30.5	0.03	0.07	0.03	0.25	120	13
125 ISL	8.76 D	8.75	34.133 D	26.481	156.7	0.220	1.22	D 53.0 D	18.7	42.6	2.47	30.8	0.04	0.06	0.03	0.25	126	
140	8.65	8.63	34.145	26.509	154.3	0.242	1.06	46.1	16.2	44.9	2.53	31.4	0.06	0.05	0.03	0.24	141	12
150 ISL	8.60 D	8.58	34.152 D	26.522	153.3	0.260	1.04	D 45.0 D	15.8	45.6	2.54	31.4	0.05	0.07	0.03	0.23	151	
170	8.52	8.50	34.167	26.547	151.3	0.288	1.07	46.6	16.3	46.8	2.55	31.4	0.03	0.11	0.02	0.22	171	11
200	8.32	8.30	34.176	26.585	148.2	0.333	0.79	34.2	11.9	51.5	2.68	32.3	0.03	0.03	0.03	0.25	202	10
229	8.05	8.03	34.194	26.640	143.5	0.375	0.64	27.6	9.6	55.6	2.77	33.1	0.04	0.08			231	09
250 ISL	7.89 D	7.86	34.204 D	26.673	140.7	0.408	0.52	D 22.5 D	7.8	58.8	2.84	33.3	0.03	0.07			252	
270	7.74	7.71	34.209	26.699	138.5	0.433	0.46	19.8	6.8	61.8	2.90	33.5	0.02	0.07			272	08
300 ISL	7.55 D	7.52	34.215 D	26.731	135.9	0.478	0.42	D 18.4 D	6.3	63.6	2.92	33.7	0.03	0.07			302	
320	7.47	7.44	34.215	26.744	135.0	0.501	0.45	19.6	6.7	64.7	2.93	33.9	0.03	0.07			323	07
380	6.98	6.94	34.237	26.831	127.4	0.580	0.24	10.4	3.5	76.8	3.14	33.0	0.02	0.08			383	06
400 ISL	6.85 D	6.81	34.241 D	26.852	125.7	0.610	0.20 D	8.6 D	2.9	80.4	3.20	32.1	0.02	0.09			403	
439	6.72	6.67	34.247	26.875	124.0	0.654	0.12	5.2	1.7	87.5	3.33	30.2	0.02	0.10			443	04
478	6.60	6.55	34.253	26.897	122.5	0.702	0.02	1.0	0.3	98.9	3.61	24.4	0.02	0.18			482	03
500 ISL	6.55 D	6.50	34.251 D	26.902	122.3	0.735	0.08 D	3.4 D	1.2	101.8	3.71	22.5	0.02	0.12			504	
512	6.53	6.48	34.251	26.906	122.1	0.744	0.06	2.4	0.8	103.4	3.76	21.5	0.02	0.09			516	02
566	6.42	6.36	34.256	26.925	121.0	0.809	0.21	9.3	3.1	88.6	3.28	32.5	0.05	0.05			571	05
570	6.41	6.36	34.257	26.926	121.0	0.814	0.22	9.5	3.2	89.1	3.30	32.5	0.09	0.10			575	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
B) SANTA BARBARA BASIN STATION.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 39.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 15.8 N	119 24.4 W	16/04/2013	0716 UTC	31 m	270 20 kn			1012.1 mb	12.1 C	10.0 C				039

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.36	13.36	33.714	25.327	263.7	0.000	7.29	317.5	122.9	2.2	0.43	2.5	0.07	0.21	4.86	1.03	0	
2	13.36	13.35	33.714	25.327	263.8	0.005	7.29	317.5	122.9	2.2	0.43	2.5	0.07	0.21	4.86	1.03	2	06
4	13.35	13.35	33.699	25.316	264.9	0.011	7.26	316.4	122.5	2.3	0.49	2.6	0.07	0.23	5.06	0.92	4	05
10	12.92	12.91	33.713	25.414	255.7	0.026	6.71	292.0	112.1	0.4	0.25	0.1	0.03	0.02	11.31	2.10	10	02
10	12.95	12.95	33.709	25.403	256.7	0.027											10	03
19	11.63	11.63	33.756	25.693	229.3	0.048	4.08	177.8	66.4	14.7	1.40	13.6	0.21	1.54	8.93	2.21	19	04
20 ISL	11.62 D	11.62	33.756 D	25.695	229.3	0.051	4.12	D179.4 D	67.0								20	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 13.3 N	119 25.0 W	16/04/2013	0600 UTC	38 m	280 21 kn			1011.7 mb	12.3 C	10.0 C				038

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.13	13.13	33.703	25.363	260.2	0.000	6.95	302.9	116.7	9.3	1.05	9.6	0.14	1.18	8.59	1.43	0	
2	13.13	13.13	33.703	25.363	260.3	0.005	6.95	302.9	116.7	9.3	1.05	9.6	0.14	1.18	8.59	1.43	2	06
5	13.13	13.13	33.702	25.362	260.5	0.013	6.99	304.2	117.3	0.9	0.28	0.8	0.04	0.10	8.12	1.41	5	05
10	13.13	13.13	33.702	25.362	260.7	0.026	7.03	306.2	118.0	1.0	0.29	1.0	0.04	0.10	8.41	1.08	10	03
10	13.13	13.14	33.702	25.361	260.7	0.026											10	04
20 ISL	12.17 D	12.17	33.713 D	25.558	242.3	0.052	5.03	D219.0 D	82.7	1.0	0.28	1.1	0.05	0.11	7.31	1.35	20	
21	12.07	12.06	33.712	25.578	240.4	0.054	4.99	217.2	81.9	1.0	0.28	1.1	0.05	0.11	7.20	1.37	21	02
30	11.32	11.32	33.764 D	25.757	223.6	0.075	3.86	D168.0 D	62.4								30	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 42.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 10.1 N	119 30.8 W	16/04/2013	0354	UTC	198 m	280 27 kn			1011.4 mb	12.7 C	9.8 C				037

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.23	13.23	33.631	25.287	267.5	0.000	5.84	254.5	98.2	5.7	0.65	4.9	0.10	0.38	2.62	0.52	0	
1	13.23	13.23	33.631	25.287	267.5	0.003	5.84	254.5	98.2	5.7	0.65	4.9	0.10	0.38	2.62	0.52	1	15
10	13.23	13.23	33.634	25.290	267.5	0.027	5.89	256.7	99.1	5.4	0.64	4.7	0.10	0.40	2.83	0.49	10	13
10	13.23	13.23	33.635	25.290	267.4	0.028											10	14
20	13.21	13.20	33.635	25.296	267.2	0.054	5.87	255.6	98.6	5.5	0.65	4.8	0.10	0.40	2.65	0.51	20	12
30	12.48	12.48	33.620	25.428	254.9	0.080	4.77	207.9	79.0						1.41	0.72	30	11
40	10.99	10.99	33.716	25.779	221.8	0.104	3.76	163.7	60.3	11.7	1.02	10.5	0.10	0.28	0.47	0.54	40	10
50	10.51	10.50	33.782	25.916	208.9	0.125	3.12	136.0	49.6	18.5	1.48	16.9	0.11	0.58	0.31	0.57	50	09
60	10.22	10.21	33.888	26.050	196.4	0.145	2.69	117.1	42.5	22.9	1.71	20.3	0.11	0.44	0.35	0.68	60	08
70	9.86	9.85	33.941	26.151	187.0	0.165	2.31	100.5	36.2	26.9	1.89	22.2	0.20	0.74	0.16	0.49	71	07
75 ISL	9.81 D	9.80	33.967 D	26.181	184.3	0.175	2.26 D	98.4 D	35.4	27.8	1.93	23.1	0.17	0.58	0.12	0.41	76	
85	9.76	9.75	34.006	26.220	180.8	0.192	2.07	90.0	32.3	29.5	2.02	24.8	0.12	0.27	0.05	0.26	86	06
100	9.55	9.54	34.058	26.296	173.9	0.219	1.90	82.9	29.7	30.5	2.11	26.1	0.03	0.03	0.03	0.20	101	05
120	9.29	9.27	34.113	26.382	166.1	0.253	1.73	75.1	26.7	32.6	2.18	27.1	0.04	0.01	0.02	0.13	121	04
125 ISL	9.20 D	9.18	34.124 D	26.405	164.0	0.262	1.71 D	74.5 D	26.5	33.8	2.22	27.6	0.04	0.01	0.02	0.14	126	
141	9.00	8.98	34.140	26.450	160.1	0.287	1.60	69.5	24.6	37.4	2.33	29.0	0.04	0.01	0.02	0.17	142	03
150 ISL	8.96 D	8.95	34.160 D	26.472	158.2	0.303	1.52 D	66.0 D	23.3	38.6	2.36	29.3	0.04	0.01	0.02	0.16	151	
171	8.78	8.76	34.177	26.515	154.4	0.334	1.38	59.8	21.1	41.3	2.42	30.1	0.05	0.00	0.02	0.15	172	02
191	8.75	8.73	34.179	26.521	154.3	0.365	1.38	59.9	21.1	41.7	2.43	30.4	0.06	0.14	0.03	0.19	193	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 52.0 N	120 8.3 W	17/04/2013	0048	UTC	151 m	320 30 kn	300 06 05	0	1016.1 mb	12.2 C	9.8 C		0/8		042

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.61	11.61	33.734	25.678	230.3	0.000	5.06	220.2	82.2	16.1	1.28	14.0	0.13	0.25	1.99	0.44	0	
2	11.61	11.61	33.734	25.678	230.3	0.005	5.06	220.2	82.2	16.1	1.28	14.0	0.13	0.25	1.99	0.44	2	12
10	11.60	11.60	33.735	25.682	230.2	0.023	5.01	218.3	81.5	16.1	1.26	13.9	0.13	0.27	2.06	0.46	10	11
20	11.58	11.58	33.736	25.688	229.9	0.046	5.01	218.2	81.4	16.2	1.27	14.0	0.13	0.26	2.06	0.46	20	10
30	11.51	11.51	33.749	25.710	228.0	0.069	4.95	215.4	80.3	16.6	1.29	14.3	0.13	0.29	2.55	0.58	30	09
40	11.40	11.39	33.762	25.742	225.3	0.092	5.00	217.5	80.9	17.0	1.32	14.3	0.13	0.33	2.74	0.58	40	08
50	11.23	11.23	33.781	25.787	221.2	0.114	4.88	212.4	78.7	17.9	1.38	15.1	0.13	0.41	2.62	0.64	50	07
60	11.36	11.35	33.796	25.776	222.5	0.136	4.89	D213.0 D	79.1	20.3	1.51	17.4	0.12	0.38	1.90	0.50	60	06
70	11.19	11.18	33.783	25.797	220.8	0.158	4.83	210.5	77.9	18.0	1.39	15.2	0.13	0.41	2.53	0.68	71	05
75 ISL	10.94 D	10.93	33.799 D	25.855	215.4	0.170	4.37	D190.3 D	70.0	19.9	1.49	17.0	0.12	0.34	1.99	0.58	76	
85	10.36	10.35	33.808	25.964	205.2	0.190	3.48	151.7	55.1	23.6	1.69	20.6	0.09	0.19	0.92	0.38	86	04
100	10.37	10.36	33.816	25.968	205.2	0.221	3.44	149.7	54.5	23.9	1.73	20.8	0.09	0.22	0.89	0.38	101	03
120	10.28	10.26	33.828	25.994	203.1	0.262	3.34	145.3	52.8	24.8	1.74	21.3	0.09	0.21	0.89	0.38	121	02
125 ISL	10.24 D	10.22	33.827 D	26.001	202.6	0.274	3.32	D144.4 D	52.4	24.9	1.75	21.3	0.09	0.22	0.88	0.38	126	
140	10.17	10.15	33.830	26.015	201.6	0.302	3.30	143.8	52.1	24.9	1.76	21.4	0.09	0.23	0.82	0.36	141	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 44.8 N	120 24.5 W	20/04/2013	0042	UTC	966 m	320 19 kn	320 04 06	0	1018.3 mb	14.0 C	12.1 C		0/8		053

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.56	12.56	33.694	25.469	250.2	0.000	5.94	258.5	98.4	13.1	1.07	9.8	0.09	0.08	3.10	0.55	0	
2	12.56	12.56	33.694	25.469	250.2	0.005	5.94	258.5	98.4	13.1	1.07	9.8	0.09	0.08	3.10	0.55	2	21
10	11.75	11.75	33.710	25.634	234.7	0.024	5.46	237.6	89.0	15.6	1.27	13.0	0.10	0.05	2.45	0.68	10	19
10	11.75	11.75	33.708	25.633	234.8	0.025											10	20
20	11.20	11.19	33.747	25.766	222.4	0.047	4.51	196.2	72.6	18.4	1.51	16.5	0.11	0.11	1.45	0.54	20	18
30	10.03	10.03	33.839	26.041	196.5	0.068	3.17	138.1	49.9	25.1	1.87	21.8	0.10	0.10	0.53	0.38	30	17
40	9.49	9.48	33.922	26.198	181.8	0.087	2.43	105.8	37.8	30.5	2.15	25.9	0.08	0.08	0.17	0.24	40	16
50	9.25	9.24	33.941	26.252	176.9	0.105	2.31	100.3	35.6	31.8	2.22	26.9	0.05	0.11	0.08	0.26	50	15
60	9.20	9.20	33.943	26.261	176.3	0.123	2.25	98.0	34.8	32.1	2.23	27.1	0.04	0.11	0.05	0.22	60	14
70	9.07	9.06	33.995	26.323	170.5	0.140	2.03	88.3	31.3	34.2	2.32	27.9	0.03	0.04	0.04	0.22	71	13
75 ISL	9.03 D	9.02	34.024 D	26.352	167.9	0.149	1.99 D	86.5 D	30.6	34.9	2.35	28.2	0.03	0.04	0.04	0.22	76	
86	8.94	8.93	34.050	26.387	164.8	0.167	1.79	77.8	27.5	36.7	2.41	29.0	0.02	0.04	0.03	0.22	87	12
100	8.37	8.36	34.042	26.470	157.1	0.189	2.01	87.6	30.5	39.5	2.40	29.9	0.03	0.08	0.01	0.13	101	11
120	8.39	8.37	34.162	26.562	148.9	0.220	1.21	52.6	18.4	44.3	2.66	31.7	0.03	0.07	0.01	0.12	121	10
125 ISL	8.38 D	8.37	34.165 D	26.565	148.6	0.228	1.21 D	52.7 D	18.4	44.5	2.67	31.8	0.03	0.08	0.01	0.12	126	
140	8.34	8.32	34.169	26.575	148.0	0.249	1.18	51.1	17.8	44.9	2.68	31.9	0.04	0.12	0.01	0.11	141	09
150 ISL	8.29 D	8.27	34.177 D	26.589	146.8	0.265	1.15 D	50.1 D	17.4	45.6	2.69	32.1	0.04	0.12	0.01	0.10	151	
170	8.18	8.17	34.193	26.618	144.5	0.293	1.09	47.6	16.5	47.1	2.72	32.4	0.03	0.12	0.01	0.10	171	08
200	8.01	7.99	34.209	26.657	141.3	0.336	0.97	42.2	14.6	49.7	2.80	33.0	0.03	0.14	0.01	0.10	202	07
230	7.96	7.94	34.215	26.670	140.6	0.378	0.95	41.4	14.3	50.4	2.81	33.1	0.02	0.02			232	06
250 ISL	7.89 D	7.86	34.218 D	26.684	139.7	0.409	0.88 D	38.3 D	13.2	51.7	2.84	33.6	0.01	0.03			252	
270	7.77	7.75	34.224	26.706	137.9	0.434	0.80	34.9	12.0	53.0	2.87	34.0	0.00	0.04			272	05
300 ISL	7.67 D	7.64	34.234 D	26.729	136.2	0.478	0.75 D	32.5 D	11.2	54.8	2.91	34.4	0.00	0.05			302	
320	7.58	7.55	34.240	26.748	134.7	0.502	0.70	30.6	10.5	56.0	2.94	34.7	0.00	0.05			323	04
381	7.31	7.27	34.260	26.803	130.4	0.583	0.57	24.9	8.5	60.3	3.02	35.5	0.00	0.06			384	03
400 ISL	7.22 D	7.19	34.264 D	26.819	129.2	0.612	0.55 D	23.7 D	8.1	62.4	3.06	36.0	0.00	0.08			403	
440	6.87	6.83	34.281	26.882	123.6	0.659	0.44	19.1	6.5	66.8	3.13	36.9	0.00	0.11			444	02
500 ISL	6.56 D	6.51	34.294 D	26.935	119.3	0.736	0.38 D	16.5 D	5.5	71.6	3.19	37.9	0.00	0.13			504	
516	6.45	6.40	34.296	26.951	117.8	0.751	0.36	15.7	5.2	72.9	3.21	38.2	0.00	0.13			520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 33.6 N	120 47.6 W	19/04/2013	2002	UTC	2016 m	330 19 kn	330 04 06	0	1021.8 mb	13.8 C	12.1 C	14 m	0/8		052

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.69	12.69	33.546	25.328	263.6	0.000	5.97	259.9	99.1	6.2	0.76	5.6	0.17	0.29	0.86	0.35	0	
2 A	12.69	12.69	33.546	25.328	263.6	0.005	5.97	259.9	99.1	6.2	0.76	5.6	0.17	0.29	0.86	0.35	2	22
9 A	12.68	12.68	33.543	25.329	263.7	0.024	6.00	261.2	99.6	6.2	0.76	5.6	0.17	0.20	0.88	0.41	9	20
9	12.68	12.68	33.544	25.329	263.7	0.024											9	21
10 ISL	12.65 D	12.65	33.544 D	25.334	263.3	0.027	5.99	D260.9 D	99.5	6.2	0.76	5.6	0.17	0.20	0.86	0.39	10	
12 A	12.65	12.65	33.544	25.334	263.3	0.032	5.97	260.0	99.1	6.2	0.76	5.6	0.17	0.21	0.82	0.37	12	19
20 ISL	12.57 D	12.57	33.543 D	25.350	262.0	0.053	5.99	D260.7 D	99.2	6.1	0.76	5.5	0.17	0.19	0.90	0.41	20	
22 A	12.57	12.57	33.551	25.357	261.4	0.058	5.95	259.3	98.7	6.1	0.76	5.5	0.17	0.19	0.92	0.41	22	18
30 ISL	12.55 D	12.54	33.543 D	25.355	261.9	0.079	5.97	D259.9 D	98.8	6.2	0.76	5.6	0.17	0.22	0.92	0.44	30	
32	12.53	12.52	33.549	25.364	261.1	0.084	5.94	258.7	98.3	6.2	0.76	5.6	0.17	0.23	0.92	0.45	32	17
40 A	12.45	12.45	33.545	25.375	260.2	0.105	5.89	256.7	97.4	6.3	0.78	5.7	0.18	0.37	0.79	0.41	40	16
50 A	12.31	12.30	33.546	25.404	257.8	0.131	5.79	252.3	95.5	6.8	0.85	6.4	0.25	0.68	0.50	0.28	50	15
60	11.44	11.43	33.536	25.560	243.1	0.156	5.24	228.3	84.8	9.9	1.08	10.3	0.23	0.42	0.23	0.19	60	14
71	11.40	11.39	33.561	25.587	240.8	0.182	5.03	218.8	81.2	11.8	1.20	12.3	0.16	0.38	0.24	0.19	72	13
75 ISL	11.36 D	11.35	33.583 D	25.612	238.6	0.193	5.08	D221.2 D	82.0	12.4	1.24	13.0	0.15	0.35	0.21	0.18	76	
85	10.49	10.48	33.596 D	25.776	223.1	0.217	4.59	199.9	72.8	14.0	1.33	14.6	0.14	0.28	0.14	0.16	86	12
100	9.68	9.67	33.672	25.973	204.5	0.247	3.44	149.9	53.6	22.1	1.76	21.7	0.04	0.06	0.03	0.12	101	11
120	9.26	9.24	33.804	26.146	188.5	0.287	3.03	131.7	46.8	26.2	1.93	24.3	0.04	0.12	0.01	0.10	121	10
125 ISL	9.15 D	9.13	33.834 D	26.186	184.7	0.298	3.04	D132.1 D	46.8	27.1	1.95	24.6	0.04	0.12	0.01	0.10	126	
140	8.84	8.82	33.901	26.288	175.3	0.323	2.89	125.7	44.2	29.9	2.00	25.3	0.04	0.10	0.01	0.09	141	09
150 ISL	8.64 D	8.62	33.955 D	26.362	168.5	0.342	2.69	D117.2 D	41.1	32.0	2.07	26.4	0.04	0.11	0.01	0.08	151	
170	8.35	8.33	33.996	26.438	161.6	0.373	2.41	104.7	36.5	36.3	2.21	28.5	0.03	0.12	0.01	0.08	171	08
200 ISL	8.11 D	8.09	34.040 D	26.509	155.3	0.423	2.11	D 92.0 D	31.9	39.3	2.30	29.6	0.03	0.04	0.00	0.06	202	
201	8.14	8.12	34.028	26.497	156.5	0.422	2.24	97.4	33.8	39.4	2.30	29.6	0.03	0.04	0.00	0.06	203	07
230	7.84	7.81	34.097	26.596	147.6	0.466	1.61	70.1	24.2	45.3	2.53	31.9	0.02	0.04			232	06
250 ISL	7.60 D	7.57	34.103 D	26.635	144.1	0.499	1.46	D 63.7 D	21.8	48.2	2.63	32.8	0.02	0.09			252	
270	7.62	7.59	34.151	26.670	141.1	0.524	1.18	51.3	17.6	51.1	2.72	33.7	0.02	0.13			272	05
300 ISL	7.38 D	7.35	34.192 D	26.738	135.2	0.569	0.92	D 40.1 D	13.7	56.6	2.85	35.0	0.02	0.11			302	
320	7.12	7.08	34.223	26.799	129.5	0.592	0.74	32.1	10.9	60.4	2.93	35.9	0.02	0.09			323	04
379	6.73	6.70	34.265	26.885	122.1	0.666	0.47	20.2	6.8	66.8	3.07	37.2	0.02	0.12			382	03
400 ISL	6.70 D	6.67	34.283 D	26.905	120.6	0.697	0.43	D 18.9 D	6.3	69.0	3.10	37.5	0.02	0.13			403	
440	6.37	6.33	34.295	26.959	115.8	0.739	0.33	14.4	4.8	73.2	3.17	38.2	0.03	0.15			444	02
500 ISL	6.01 D	5.96	34.316 D	27.022	110.3	0.813	0.29	D 12.6 D	4.2	80.3	3.27	39.5	0.02	0.15			504	
515	5.92	5.87	34.320	27.037	109.0	0.823	0.27	11.6	3.8	82.0	3.30	39.8	0.02	0.15			519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 14.9 N	121 27.1 W	19/04/2013	1352	UTC	3805 m	320 20 kn	320 04 06	2	1022.8 mb	12.4 C	12.1 C		8/8	SC	051

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.33	13.33	33.466	25.139	281.5	0.000	6.03	262.8	101.5	4.3	0.49	2.3	0.10	0.08	0.71	0.10	0	
2	13.33	13.33	33.466	25.139	281.6	0.006	6.03	262.8	101.5	4.3	0.49	2.3	0.10	0.08	0.71	0.10	2	21
10	13.34	13.34	33.488	25.154	280.4	0.028	6.04	263.1	101.7	4.3	0.49	2.2	0.10	0.08	0.63	0.11	10	19
10	13.34	13.34	33.469	25.140	281.8	0.028											10	20
20	13.32	13.31	33.470	25.146	281.5	0.056	6.04	262.9	101.5	4.3	0.49	2.3	0.10	0.10	0.60	0.17	20	18
30	13.28	13.28	33.470	25.154	281.0	0.084	6.03	262.9	101.5	4.2	0.49	2.3	0.10	0.11	0.60	0.17	30	17
40	13.21	13.21	33.463	25.163	280.5	0.113	6.02	262.2	101.0	4.2	0.50	2.3	0.10	0.15	0.63	0.13	40	16
50	13.20	13.19	33.462	25.165	280.6	0.141	6.01	261.8	100.9	4.2	0.51	2.4	0.11	0.25	0.56	0.10	50	15
61	11.88	11.87	33.489 D	25.442	254.4	0.171	5.88	256.1	96.0	4.6	0.57	3.1	0.16	0.39	0.37	0.11	61	14
71	10.94	10.93	33.508	25.627	236.9	0.195	4.54	197.5	72.6	13.7	1.27	14.7	0.03	0.02	0.14	0.13	72	13
75 ISL	10.82 D	10.81	33.597 D	25.719	228.2	0.205	4.39	D191.2 D	70.1	15.0	1.35	15.8	0.03	0.02	0.12	0.13	76	
85	10.52	10.51	33.600	25.775	223.2	0.227	3.83	166.8	60.8	18.3	1.54	18.7	0.03	0.03	0.08	0.13	86	12
100	10.16	10.15	33.683	25.901	211.5	0.259	3.28	142.6	51.6	21.8	1.72	21.6	0.03	0.08	0.07	0.13	101	11
120	9.73	9.71	33.808	26.072	195.7	0.300	2.70	117.6	42.2	26.1	1.92	24.5	0.03	0.08	0.02	0.11	121	10
125 ISL	9.61 D	9.60	33.826 D	26.105	192.6	0.311	2.67	D116.3 D	41.6	27.1	1.95	24.9	0.03	0.09	0.02	0.12	126	
140	9.14	9.12	33.895	26.236	180.4	0.338	2.53	110.0	39.0	30.0	2.03	26.0	0.03	0.11	0.01	0.12	141	09
150 ISL	9.07 D	9.05	33.931 D	26.275	176.8	0.357	2.38	D103.5 D	36.6	31.7	2.08	26.9	0.03	0.11	0.01	0.13	151	
171	8.70	8.68	33.999	26.387	166.6	0.392	2.11	91.6	32.2	35.4	2.20	28.8	0.04	0.10	0.01	0.14	172	08
200	8.34	8.32	34.054	26.487	157.6	0.439	1.80	78.2	27.2	39.9	2.34	30.6	0.04	0.14	0.01	0.09	202	07
231	8.09	8.06	34.105	26.565	150.6	0.486	1.48	64.3	22.3	44.3	2.47	32.0	0.03	0.06			233	06
250 ISL	7.97 D	7.94	34.138 D	26.610	146.7	0.518	1.29	D 56.0 D	19.4	47.3	2.56	32.9	0.03	0.05			252	
272	7.74	7.71	34.172	26.670	141.3	0.546	0.99	43.0	14.8	50.8	2.67	33.9	0.02	0.04			274	05
300 ISL	7.35 D	7.32	34.170 D	26.724	136.4	0.589	0.92	D 40.0 D	13.6	54.1	2.73	34.8	0.02	0.05			302	
321	7.28	7.25	34.181	26.744	134.9	0.614	0.83	36.2	12.3	56.6	2.77	35.4	0.02	0.05			324	04
381	6.74	6.71	34.211	26.842	126.2	0.692	0.60	25.9	8.7	64.6	2.91	37.3	0.02	0.10			384	03
400 ISL	6.63 D	6.59	34.224 D	26.868	123.9	0.720	0.53	D 22.8 D	7.7	66.7	2.95	37.7	0.02	0.10			403	
442	6.30	6.26	34.237	26.922	119.2	0.767	0.43	18.7	6.2	71.3	3.03	38.7	0.02	0.11			446	02
500 ISL	5.98 D	5.94	34.267 D	26.988	113.5	0.840	0.34	D 14.9 D	4.9	78.2	3.10	39.7	0.02	0.13			504	
516	5.86	5.81	34.275	27.009	111.6	0.852	0.30	13.0	4.3	80.1	3.12	40.0	0.02	0.13			520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 83.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 54.6 N	122 7.9 W	19/04/2013	0753 UTC	4210 m	350 23 kn			1024.3 mb	13.1 C	12.1 C				050

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.69	13.69	33.267	24.913	303.0	0.000	6.02	262.4	102.0	3.2	0.33	0.1	0.02	0.11	0.36	0.11	0	
3	13.69	13.68	33.267	24.914	303.1	0.009	6.02	262.4	102.0	3.2	0.33	0.1	0.02	0.11	0.36	0.11	3	21
10	13.69	13.69	33.274	24.919	302.8	0.030	6.02	262.5	102.0	3.2	0.32	0.0	0.02	0.09	0.35	0.10	10	19
10	13.69	13.69	33.263	24.911	303.6	0.031											10	20
20 ISL	13.70 D	13.70	33.284 D	24.925	302.6	0.061	6.03	D262.7	D102.1	3.3	0.33	0.0	0.02	0.10	0.37	0.11	20	
26	13.70	13.69	33.295	24.934	301.9	0.079	6.00	261.4	101.6	3.3	0.33	0.0	0.02	0.10	0.38	0.12	26	18
30 ISL	13.69 D	13.69	33.295 D	24.936	301.8	0.091	6.01	D261.9	D101.8	3.3	0.33	0.0	0.02	0.11	0.38	0.13	30	
41	13.65	13.64	33.298	24.947	301.1	0.124	5.98	260.4	101.2	3.3	0.34	0.1	0.03	0.12	0.40	0.14	41	17
50	13.44	13.44	33.265	24.964	299.7	0.151	6.01	261.8	101.2	3.3	0.34	0.2	0.03	0.12	0.41	0.12	50	16
62	13.18	13.17	33.235	24.994	297.2	0.187	6.06	264.0	101.5	3.3	0.36	0.4	0.05	0.14	0.42	0.12	62	15
75 ISL	12.83 D	12.82	33.282 D	25.100	287.4	0.226	5.88	D256.4	D 97.9	4.0	0.43	1.3	0.16	0.34	0.26	0.12	76	
76	12.50	12.49	33.309 D	25.185	279.3	0.230	5.92	257.9	97.8	4.0	0.44	1.4	0.17	0.35	0.25	0.12	77	14
87	12.16	12.14	33.327	25.265	271.9	0.258	5.75	250.6	94.4	5.3	0.64	4.4	0.21	0.14	0.13	0.11	88	13
100	11.80	11.78	33.356	25.356	263.6	0.293	5.55	241.9	90.4	6.4	0.76	6.6	0.13	0.09	0.09	0.09	101	12
113	11.15	11.14	33.401	25.509	249.3	0.326	5.22	227.3	83.8	8.5	0.92	9.3	0.05	0.08	0.05	0.08	114	11
125	10.39	10.38	33.455	25.684	232.7	0.355	4.44	193.2	70.1	13.7	1.24	14.8	0.02	0.10	0.03	0.06	126	10
141	9.90	9.89	33.582	25.867	215.6	0.391	3.89	169.5	60.9	18.4	1.50	18.5	0.02	0.10	0.02	0.04	142	09
150 ISL	9.75 D	9.74	33.661 D	25.954	207.5	0.413	3.59	D156.4	D 56.0	20.8	1.61	20.3	0.02	0.10	0.02	0.04	151	
171	9.29	9.27	33.802	26.141	190.1	0.452	3.04	132.1	46.9	26.4	1.87	24.4	0.02	0.09	0.01	0.04	172	08
200 ISL	8.75 D	8.72	33.937 D	26.332	172.4	0.508	2.57	D111.8	D 39.3	31.8	2.06	27.1	0.02	0.15	0.00	0.03	202	
201	8.74	8.72	33.934	26.331	172.5	0.506	2.58	112.2	39.4	32.0	2.07	27.2	0.02	0.15	0.00	0.03	203	07
230	8.29	8.26	34.012	26.463	160.4	0.554	2.23	97.1	33.8	37.1	2.20	29.2	0.00	0.09			232	06
250 ISL	8.16 D	8.13	34.044 D	26.507	156.6	0.590	2.00	D 86.8	D 30.1	40.5	2.31	30.4	0.00	0.09			252	
271	7.87	7.84	34.082	26.580	149.8	0.618	1.68	73.0	25.2	44.0	2.42	31.6	0.00	0.10			273	05
300 ISL	7.53 D	7.50	34.109 D	26.651	143.4	0.665	1.35	D 58.7	D 20.1	49.4	2.57	33.3	0.00	0.11			302	
320	7.45	7.42	34.157	26.701	139.1	0.689	1.07	46.5	15.9	53.1	2.67	34.4	0.00	0.12			323	04
380	6.87	6.84	34.194	26.811	129.2	0.769	0.68	29.5	10.0	62.8	2.87	36.8	0.00	0.11			383	03
400 ISL	6.75 D	6.71	34.202 D	26.835	127.2	0.801	0.64	D 27.6	D 9.3	64.6	2.91	37.2	0.01	0.12			403	
441	6.47	6.43	34.224	26.889	122.5	0.846	0.50	21.7	7.3	68.4	2.98	38.0	0.02	0.14			445	02
500 ISL	6.14 D	6.10	34.246 D	26.950	117.2	0.924	0.41	D 17.7	D 5.9	75.5	3.04	39.3	0.00	0.13			504	
516	5.92	5.88	34.234	26.969	115.4	0.936	0.41	17.7	5.9	77.4	3.05	39.6	0.00	0.13			520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 83.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 34.8 N	122 49.0 W	19/04/2013	0151 UTC	4298 m	350 17 kn	340 05 06	1	1025.0 mb	14.1 C	12.7 C		4/8	SC	049

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.81	13.81	33.265	24.886	305.6	0.000	6.07	264.3	103.0	3.1	0.36	0.2	0.00	0.07	0.48	0.09	0	
2	13.81	13.81	33.265	24.887	305.6	0.006	6.07	264.3	103.0	3.1	0.36	0.2	0.00	0.07	0.48	0.09	2	21
10	13.81	13.81	33.264	24.886	306.0	0.031	6.07	264.5	103.0	3.0	0.35	0.1	0.00	0.04	0.47	0.10	10	19
10	13.81	13.81	33.264	24.886	305.9	0.032											10	20
20	13.68	13.68	33.251	24.902	304.7	0.061	6.06	264.0	102.6	3.0	0.35	0.0	0.00	0.06	0.44	0.10	20	18
30	13.60	13.59	33.240	24.913	304.0	0.092	6.05	263.8	102.3	3.0	0.33	0.0	0.00	0.10	0.45	0.11	30	17
40	13.56	13.55	33.231	24.913	304.2	0.122	6.05	263.5	102.1	3.0	0.34	0.1	0.00	0.12	0.46	0.13	40	16
50	13.51	13.50	33.227	24.922	303.7	0.152	6.03	262.6	101.6						0.43	0.13	50	15
60	13.32	13.31	33.230	24.962	300.2	0.183	6.01	261.7	100.9	3.1	0.35	0.2	0.03	0.19	0.36	0.13	60	14
70	12.04	12.03	33.338 D	25.295	268.6	0.213	5.81	253.0	95.0	5.1	0.63	4.4	0.14	0.12	0.31	0.20	71	13
75 ISL	11.90 D	11.89	33.399 D	25.369	261.7	0.226	5.76	D251.0	D 94.1	5.8	0.72	5.7	0.17	0.19	0.24	0.17	76	
85	11.59	11.58	33.434	25.453	254.0	0.250	5.46	237.6	88.5	7.4	0.89	8.2	0.24	0.33	0.11	0.11	86	12
100	10.99	10.98	33.441	25.568	243.3	0.287	4.96	216.0	79.4	10.5	1.06	11.6	0.11	0.07	0.07	0.10	101	11
120	9.92	9.90	33.476	25.781	223.2	0.334	4.37	190.4	68.4	15.2	1.35	16.4	0.00	0.17	0.02	0.03	121	10
125 ISL	9.82 D	9.81	33.491 D	25.809	220.7	0.348	4.32	D188.2	D 67.5	16.2	1.39	17.2	0.00	0.16	0.02	0.03	126	
140	9.39	9.37	33.599	25.964	206.2	0.377	4.02	175.1	62.2	19.1	1.51	19.4	0.00	0.11	0.01	0.03	141	09
150 ISL	9.10 D	9.08	33.712 D	26.099	193.5	0.400	3.93	D171.0	D 60.4	21.1	1.57	20.4	0.00	0.11	0.01	0.03	151	
171	8.86	8.85	33.819	26.221	182.4	0.437	3.62	157.3	55.3	25.3	1.69	22.5	0.00	0.11	0.00	0.02	172	08
200	8.49	8.47	33.924	26.362	169.4	0.488	3.39	147.7	51.6	29.6	1.81	24.7	0.00	0.17	0.00	0.02	202	07
230	8.13	8.11	33.966	26.450	161.5	0.537	3.01	131.1	45.4	34.4	1.97	26.9	0.00	0.04			232	06
250 ISL	7.87 D	7.84	33.975 D	26.496	157.4	0.573	2.85	D123.9	D 42.7	39.1	2.11	28.8	0.00	0.06			252	
270	7.40	7.38	33.999	26.582	149.4	0.600	2.40	104.3	35.5	43.7	2.24	30.6	0.00	0.07			272	05
300 ISL	7.15 D	7.12	34.024 D	26.638	144.4	0.648	2.00	D 86.9	D 29.4	48.6	2.45	32.9	0.00	0.09			302	
320	7.25	7.22	34.089	26.676	141.3	0.672	1.35	58.8	20.0	51.9	2.59	34.4	0.00	0.11			323	04
380	6.37	6.34	34.079	26.786	131.1	0.754	1.16	50.5	16.8	62.4	2.75	37.0	0.00	0.11			383	03
400 ISL	6.22 D	6.19	34.102 D	26.824	127.7	0.785	0.98	D 42.7	D 14.2	66.1	2.82	37.8	0.00	0.12			403	
440	5.85	5.81	34.134	26.896	121.0	0.830	0.73	31.8	10.4	73.5	2.96	39.3	0.00	0.14			444	02
500 ISL	5.50 D	5.46	34.177 D	26.974	114.1	0.907	0.54	D 23.5	D 7.7	82.7	3.08	40.7	0.00	0.18			504	
516	5.34	5.30	34.189	27.003	111.4	0.918	0.50	21.5	7.0	85.1	3.11	41.1	0.00	0.19			520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 14.6 N	123 30.3 W	18/04/2013	1932 UTC	4148 m	350 17 kn	340 06 05	1	1026.8 mb	14.0 C	12.5 C	26 m	4/8	SC	048

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.95	14.95	33.427	24.770	316.6	0.000	5.82	253.6	101.2	2.8	0.28	0.0	0.00	0.09	0.12	0.01	0	
2 A	14.95	14.95	33.427	24.770	316.7	0.006	5.82	253.6	101.2	2.8	0.28	0.0	0.00	0.09	0.12	0.01	2	23
10 ISL	14.94 D	14.94	33.426 D	24.772	316.8	0.032	5.86	D255.3	D101.9	2.8	0.28	0.0	0.00	0.08	0.12	0.01	10	
16 A	14.95	14.95	33.438	24.781	316.2	0.051	5.84	254.6	101.6	2.8	0.28	0.0	0.00	0.07	0.11	0.01	16	21
16	14.95	14.95	33.427	24.772	317.0	0.051											16	22
20 ISL	14.91 D	14.91	33.426 D	24.780	316.4	0.064	5.84	D254.6	D101.6	2.8	0.28	0.0	0.00	0.06	0.11	0.02	20	
22 A	14.92	14.92	33.438	24.786	315.8	0.070	5.88	256.1	102.2	2.8	0.28	0.0	0.00	0.06	0.11	0.02	22	20
30 ISL	14.90 D	14.89	33.426 D	24.784	316.4	0.096	5.84	D254.6	D101.5	2.8	0.28	0.0	0.00	0.04	0.12	0.01	30	
32	14.89	14.89	33.426	24.785	316.3	0.101	5.83	254.0	101.3	2.8	0.28	0.0	0.00	0.04	0.12	0.01	32	19
41 A	14.81	14.80	33.412	24.792	315.9	0.130	5.85	254.8	101.4	2.8	0.29	0.0	0.00	0.05	0.13	0.02	41	18
50 ISL	14.34 D	14.33	33.341 D	24.838	311.8	0.159	5.93	D258.5	D101.8	2.8	0.30	0.0	0.00	0.07	0.20	0.02	50	
53	14.08	14.08	33.331	24.884	307.5	0.167	5.93	258.4	101.3	2.8	0.30	0.0	0.00	0.08	0.22	0.03	53	17
66	13.40	13.39	33.246	24.958	300.7	0.207	6.01	261.7	101.1	3.0	0.32	0.0	0.00	0.10	0.39	0.07	67	16
75 ISL	12.96 D	12.95	33.177 D	24.994	297.5	0.236	6.06	D264.2	D101.1	3.3	0.36	0.3	0.05	0.08	0.55	0.23	76	
76 A	12.92	12.91	33.171	24.998	297.2	0.236	6.03	262.8	100.5	3.3	0.36	0.3	0.05	0.08	0.57	0.25	77	15
84	12.63	12.62	33.154	25.040	293.4	0.260	5.98	260.5	99.0	3.5	0.40	0.7	0.10	0.19	0.54	0.20	85	14
90 A	12.38	12.37	33.127	25.067	290.9	0.278	6.00	261.2	98.7	3.6	0.42	0.9	0.14	0.28	0.44	0.19	91	13
100	11.85	11.84	33.138	25.177	280.7	0.306	5.84	254.4	95.1	4.7	0.56	3.0	0.16	0.37	0.22	0.13	101	12
110	11.46	11.45	33.251	25.336	265.7	0.333	5.39	234.6	87.0	6.9	0.73	6.5	0.04	0.08	0.14	0.09	111	11
124	11.25	11.23	33.293	25.408	259.1	0.370	5.22	227.5	84.0	7.8	0.82	8.0	0.03	0.15	0.16	0.07	125	10
125 ISL	11.27 D	11.25	33.293 D	25.405	259.5	0.376	5.24	D228.3	D 84.3	8.0	0.83	8.2	0.03	0.15	0.15	0.07	126	
146	10.65	10.63	33.377	25.580	243.2	0.426	4.82	210.1	76.6	10.8	1.03	11.8	0.02	0.13	0.09	0.05	147	09
150 ISL	10.62 D	10.60	33.381 D	25.588	242.5	0.439	4.82	D209.7	D 76.4	12.1	1.10	13.0	0.02	0.12	0.08	0.04	151	
170	9.54	9.53	33.611	25.950	208.3	0.480	4.08	177.4	63.3	18.7	1.46	18.9	0.00	0.06	0.01	0.02	171	08
200 ISL	8.97 D	8.95	33.829 D	26.213	183.8	0.543	3.59	D156.0	D 55.0	24.9	1.68	22.6	0.00	0.06	0.00	0.03	202	
202	8.94	8.92	33.826	26.215	183.6	0.543	3.57	155.5	54.8	25.3	1.69	22.8	0.00	0.06	0.00	0.03	204	07
230	8.64	8.61	33.913	26.332	173.0	0.593	3.29	143.1	50.1	29.3	1.83	24.8	0.00	0.07			232	06
250 ISL	8.35 D	8.32	33.960 D	26.413	165.5	0.631	3.00	D130.6	D 45.5	33.4	1.97	26.7	0.00	0.09			252	
271	8.10	8.07	33.995	26.478	159.6	0.661	2.55	111.0	38.4	37.6	2.12	28.7	0.00	0.12			273	05
300 ISL	7.76 D	7.73	34.019 D	26.548	153.3	0.712	2.31	D100.5	D 34.5	42.6	2.26	30.5	0.00	0.14			302	
320	7.53	7.50	34.031 D	26.590	149.6	0.742	2.06	D 89.8	D 37.8								323	04
380	6.79	6.76	34.072	26.725	137.2	0.822	1.38	60.2	20.2	56.6	2.63	35.4	0.00	0.21			383	03
400 ISL	6.52 D	6.48	34.078 D	26.767	133.3	0.856	1.27	D 55.3	D 18.5	60.4	2.70	36.3	0.00	0.20			403	
444	6.07	6.03	34.096	26.840	126.7	0.907	0.95	41.2	13.6	68.5	2.85	38.4	0.00	0.19			448	02
500 ISL	5.67 D	5.63	34.146 D	26.929	118.6	0.983	0.67	D 29.3	D 9.6	77.1	2.97	39.8	0.00	0.14			504	
520	5.51	5.46	34.152	26.954	116.3	0.999	0.62	27.1	8.8	80.1	3.01	40.3	0.00	0.12			524	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 33.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 53.5 N	118 29.6 W	10/04/2013	0734 UTC	56 m	350 09 kn			1015.9 mb	17.8 C	12.9 C				016

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.24	14.24	33.598	25.055	289.6	0.000	5.93	258.4	101.8	3.3	0.35	1.6	0.08		3.98	0.93	0	
2	14.24	14.24	33.598	25.055	289.6	0.006	5.93	258.4	101.8	3.3	0.35	1.6	0.08		3.98	0.93	2	08
5	14.21	14.21	33.602	25.064	288.9	0.015	5.91	257.5	101.4	3.4	0.37	1.6	0.08		4.29	0.78	5	07
10	13.87	13.87	33.598	25.131	282.6	0.029	5.79	252.4	98.7	4.2	0.42	2.6	0.08		4.34	0.76	10	05
11	13.87	13.87	33.602	25.134	282.3	0.030											10	06
20	10.75	10.75	33.648	25.768	222.2	0.054	3.35	145.8	53.4	19.9	1.64	19.3	0.10		0.27	0.20	20	04
30	10.36	10.36	33.629	25.821	217.4	0.076	2.82	122.9	44.6	25.8	2.17	22.5	0.26		0.13	0.22	30	03
39	10.11	10.10	33.807	26.004	200.2	0.095	2.60	113.2	40.9	26.6	1.96	23.5	0.14		0.06	0.21	39	02
46	9.95	9.95	33.868 D	26.078	193.3	0.109	2.34	D101.8	D 36.7								46	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY UNCORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 49.3 N	118 37.3 W	10/04/2013	0956 UTC	631 m	200 04 kn			1016.7 mb	15.0 C	13.0 C				017

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.43	12.43	33.596	25.418	255.0	0.000	5.31	231.3	87.8	8.7	0.87	8.4	0.09		3.84	0.30	0	
2	12.43	12.43	33.596	25.418	255.1	0.005	5.31	231.3	87.8	8.7	0.87	8.4	0.09		3.84	0.30	2	21
10	12.43	12.43	33.598	25.420	255.1	0.026	5.30	230.9	87.6	8.7	0.87	8.5	0.10		3.54	0.62	10	19
10	12.43	12.43	33.596	25.419	255.2	0.026											10	20
20	12.35	12.35	33.604	25.439	253.6	0.051	5.15	224.4	85.0	9.5	0.93	9.2	0.10		3.36	0.28	20	18
30	12.07	12.07	33.595	25.487	249.3	0.076	4.30	187.4	70.6	13.4	1.23	13.3	0.09		1.01	0.35	30	17
40	10.70	10.70	33.680	25.803	219.4	0.100	3.05	132.7	48.6	20.6	1.72	20.6	0.04		0.18	0.17	40	16
50	10.41	10.41	33.756	25.912	209.2	0.121	2.84	123.6	45.0	23.1	1.83	22.0	0.03		0.05	0.12	50	15
60	10.31	10.30	33.789	25.956	205.3	0.142	2.74	119.2	43.3	24.1	1.88	22.6	0.03		0.03	0.09	60	14
70	10.17	10.16	33.847	26.026	198.9	0.162	2.53	110.3	40.0	25.8	1.96	23.5	0.03		0.02	0.07	71	13
75 ISL	10.14 D	10.13	33.878 D	26.056	196.2	0.173	2.48	D107.9	D 39.1	27.1	2.01	24.2	0.03		0.02	0.08	76	
85	9.77	9.76	33.949	26.173	185.2	0.191	2.21	96.1	34.5	29.7	2.10	25.7	0.04		0.02	0.09	86	12
100	9.61	9.60	34.018	26.255	177.8	0.218	1.96	85.2	30.5	31.9	2.20	26.8	0.05		0.02	0.12	101	11
120	9.31	9.29	34.111	26.377	166.6	0.252	1.73	75.5	26.9	35.4	2.30	28.1	0.04		0.01	0.07	121	10
125 ISL	9.31 D	9.29	34.107 D	26.375	166.9	0.262	1.66	D 72.4	D 25.8	35.9	2.32	28.3	0.06		0.02	0.08	126	
140	9.18	9.17	34.143	26.423	162.7	0.285	1.51	65.6	23.3	37.6	2.38	28.9	0.10		0.02	0.11	141	09
150 ISL	9.08 D	9.06	34.153 D	26.447	160.5	0.304	1.54	D 66.9	D 23.7	38.4	2.39	29.2	0.08		0.02	0.11	151	
170	8.90	8.88	34.164	26.486	157.3	0.333	1.47	63.9	22.6	39.9	2.42	29.7	0.04		0.02	0.11	171	08
200	8.66	8.63	34.190	26.545	152.2	0.380	1.32	57.6	20.2	42.9	2.50	30.6	0.05		0.02	0.09	202	07
230	8.39	8.37	34.205	26.598	147.7	0.425	1.17	51.1	17.8	46.0	2.58	31.6	0.03				232	06
250 ISL	8.21 D	8.18	34.211 D	26.632	144.8	0.457	1.07	D 46.6	D 16.2	48.1	2.63	32.3	0.03				252	
270	8.06	8.04	34.220	26.660	142.4	0.483	0.98	42.7	14.8	50.2	2.68	32.9	0.03				272	05
300 ISL	7.87 D	7.84	34.226 D	26.693	139.7	0.529	0.92	D 39.9	D 13.8	52.9	2.74	33.7	0.02				302	
321	7.69	7.65	34.231	26.725	137.0	0.554	0.79	34.5	11.8	54.8	2.78	34.3	0.02				324	04
380	7.24	7.21	34.258	26.811	129.6	0.633	0.59	25.7	8.7	61.3	2.90	35.8	0.00				383	03
400 ISL	7.12 D	7.08	34.264 D	26.834	127.7	0.664	0.54	D 23.6	D 8.0	63.6	2.94	36.3	0.00				403	
440	6.83	6.79	34.284	26.890	122.8	0.709	0.39	17.1	5.8	68.3	3.02	37.3	0.00				444	02
500 ISL	6.35 D	6.31	34.319 D	26.981	114.6	0.786	0.27	D 11.9	D 4.0								504	
515	6.27	6.23	34.325 D	26.997	113.3	0.803	0.27	D 11.9	D 4.0								519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 86.7 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 39.3 N	118 58.5 W	10/04/2013	1353	UTC	733 m	300 07 kn	280 02 07	0	1018.2 mb	14.9 C	13.2 C		0/8		018

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.52	14.52	33.556	24.963	298.3	0.000	6.15	267.9	106.1	3.7	0.34	0.0	0.00	0.07	2.56	0.33	0	
2	14.52	14.51	33.556	24.964	298.3	0.006	6.15	267.9	106.1	3.7	0.34	0.0	0.00	0.07	2.56	0.33	2	24
10	14.06	14.06	33.564	25.066	288.8	0.030	5.80	252.6	99.1	5.6	0.55	3.2	0.05	0.14	2.32	0.41	10	23
20	12.45	12.45	33.581	25.402	257.1	0.057	5.13	223.4	84.8	9.8	0.90	8.7	0.09	0.13	1.25	0.38	20	22
30	11.11	11.11	33.586	25.657	233.1	0.081	4.20	183.0	67.5	15.5	1.30	15.2	0.07	0.08	0.48	0.29	30	21
41	10.52	10.51	33.590	25.764	223.1	0.106	3.96	172.5	62.9	17.9	1.43	17.5	0.04	0.05	0.18	0.21	41	20
50	10.15	10.15	33.654	25.877	212.5	0.126	3.50	152.2	55.0	20.8	1.61	20.2	0.03	0.08	0.08	0.15	50	19
61	10.25	10.24	33.777	25.957	205.3	0.149	2.89	125.7	45.6	23.8	1.78	22.1	0.03	0.13	0.05	0.13	61	18
70	10.15	10.14	33.799	25.991	202.2	0.167	2.78	121.0	43.8	24.8	1.84	22.8	0.03	0.12	0.03	0.08	71	17
75 ISL	10.05 D	10.05	33.807 D	26.014	200.1	0.179	2.75	D119.5 D	43.2	25.4	1.87	23.2	0.03	0.11	0.03	0.09	76	
85	9.95	9.94	33.850	26.067	195.4	0.197	2.58	112.4	40.5	26.6	1.93	23.9	0.02	0.10	0.02	0.10	86	16
100 ISL	9.59 D	9.58	33.913 D	26.176	185.3	0.227	2.38	D103.6 D	37.1	29.5	2.02	25.4	0.00	0.07	0.02	0.09	101	
101	9.56	9.55	33.919	26.185	184.4	0.228	2.37	103.1	36.9	29.7	2.03	25.5	0.00	0.07	0.02	0.09	102	15
120	9.28	9.26	33.971	26.273	176.4	0.262	2.14	93.1	33.1	33.0	2.13	27.0	0.00	0.10	0.01	0.10	121	14
125 ISL	9.31 D	9.29	33.985 D	26.279	176.0	0.273	2.12	D 92.2 D	32.8	33.5	2.15	27.3	0.01	0.09	0.01	0.10	126	
140	9.07	9.05	34.008	26.336	170.9	0.297	1.97	85.8	30.4	35.1	2.19	28.0	0.02	0.07	0.01	0.09	141	13
150 ISL	9.02 D	9.01	34.029 D	26.359	168.9	0.316	1.91	D 83.2 D	29.4	36.3	2.24	28.4	0.03	0.07	0.01	0.09	151	
171	8.84	8.82	34.097	26.443	161.3	0.348	1.65	71.7	25.3	38.8	2.33	29.3	0.04	0.08	0.01	0.08	172	12
200	8.32	8.30	34.162 D	26.573	149.4	0.396	1.22	D 53.3 D	18.6								202	11
230	8.22	8.20	34.177	26.602	147.2	0.438	1.16	50.3	17.5	46.8	2.55	32.1	0.00	0.09			232	10
250 ISL	8.03 D	8.00	34.197 D	26.647	143.3	0.471	1.02	D 44.2 D	15.3	49.9	2.63	32.9	0.00	0.10			252	
270	7.83	7.80	34.219	26.694	139.1	0.495	0.85	36.9	12.7	53.0	2.70	33.7	0.00	0.11			272	09
300 ISL	7.70 D	7.67	34.232 D	26.724	136.7	0.541	0.76	D 33.2 D	11.4	55.8	2.75	34.3	0.00	0.11			302	
320	7.51	7.48	34.249	26.765	133.1	0.564	0.67	29.0	9.9	57.6	2.79	34.7	0.00	0.11			323	08
380	7.02	6.98	34.279	26.858	124.9	0.641	0.47	20.2	6.8	64.7	2.93	36.4	0.00	0.12			383	07
400 ISL	6.89 D	6.85	34.290 D	26.885	122.6	0.671	0.40	D 17.4 D	5.9	67.0	2.96	36.7	0.00	0.12			403	
440	6.66	6.61	34.305	26.929	118.9	0.714	0.32	14.1	4.7	71.7	3.03	37.4	0.00	0.12			444	06
480	6.50	6.45	34.318	26.961	116.4	0.761	0.26	11.5	3.8	75.1	3.07	37.9	0.00	0.10			484	05
500 ISL	6.38 D	6.33	34.322 D	26.980	114.7	0.791	0.25	D 10.8 D	3.6	77.0	3.10	38.3	0.00	0.08			504	
516	6.22	6.18	34.333	27.009	112.1	0.802	0.23	10.2	3.4	78.5	3.12	38.6	0.00	0.06			520	04
600 ISL	5.61 D	5.55	34.373 D	27.119	102.1	0.900	0.14	D 5.9 D	1.9	92.7	3.21	38.8	0.00	0.07			605	
615	5.53	5.48	34.383	27.136	100.6	0.908	0.13	5.8	1.9	95.3	3.23	38.8	0.00	0.07			620	03
700 ISL	5.29 D	5.23	34.393 D	27.174	97.8	1.001	0.12	D 5.0 D	1.6	102.6	3.31	37.4	0.00	0.13			706	
714	5.27	5.21	34.395	27.179	97.5	1.006	0.09	3.7	1.2	103.8	3.32	37.2	0.00	0.14			720	02
720	5.26	5.20	34.395	27.180	97.5	1.011	0.09	4.1	1.3	104.1	3.34	37.3	0.00	0.15			726	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 86.7 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.4 N	119 19.4 W	10/04/2013	1808	UTC	1647 m	320 08 kn	300 02 08	0	1020.3 mb	14.8 C	13.1 C	08 m	0/8		019

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.33	13.33	33.553	25.208	275.0	0.000	6.00	261.3	101.0	6.1	0.62	4.4	0.09	0.15	2.14	0.49	0	
2 A	13.33	13.32	33.553	25.208	275.0	0.006	6.00	261.3	101.0	6.1	0.62	4.4	0.09	0.15	2.14	0.49	2	24
5 A	13.21	13.21	33.557	25.234	272.6	0.014	6.02	262.4	101.2	6.0	0.63	4.3	0.08	0.21	2.36	0.57	5	23
7 A	13.17	13.17	33.553	25.240	272.2	0.019	6.02	262.2	101.0	6.0	0.62	4.3	0.09	0.20	2.35	0.64	7	22
10 ISL	13.11 D	13.11	33.553 D	25.250	271.3	0.028	6.04	D263.3 D	101.3	6.1	0.63	4.4	0.09	0.19	2.51	0.65	10	
13	13.09	13.09	33.554	25.256	270.8	0.035											13	21
14 A	13.08	13.08	33.553	25.257	270.7	0.038	5.95	259.3	99.7	6.2	0.64	4.5	0.09	0.17	2.73	0.66	14	20
20 ISL	13.00 D	13.00	33.555 D	25.275	269.2	0.055	5.88	D256.2 D	98.4	6.7	0.67	5.1	0.09	0.15	2.80	0.70	20	
23 A	12.96	12.96	33.556	25.284	268.5	0.062	5.79	252.3	96.8	7.0	0.69	5.4	0.09	0.14	2.84	0.72	23	19
28 A	12.63	12.62	33.557	25.350	262.2	0.076	5.60	243.9	92.9	7.8	0.73	6.5	0.09	0.20	2.08	0.65	28	18
30 ISL	12.52 D	12.52	33.559 D	25.373	260.2	0.081	5.49	D239.2 D	90.9	8.8	0.81	7.5	0.10	0.21	1.77	0.58	30	
33	12.26	12.26	33.556	25.420	255.7	0.089	5.23	227.6	86.0	10.2	0.92	9.1	0.11	0.23	1.29	0.47	33	17
40	11.68	11.67	33.562	25.535	244.9	0.106	4.78	208.1	77.7	12.6	1.08	11.9	0.11	0.14	0.79	0.31	40	16
50 ISL	10.42 D	10.41	33.630 D	25.813	218.7	0.130	3.69	D160.7 D	58.4	18.8	1.48	18.3	0.05	0.17	0.15	0.15	50	
51	10.37	10.37	33.641 D	25.829	217.1	0.133	3.49	D152.0 D	55.2	19.4	1.52	18.9	0.04	0.17	0.09	0.13	51	15
60	10.08	10.07	33.740	25.957	205.2	0.151	2.99	129.9	46.9	23.6	1.78	22.3	0.03	0.15	0.03	0.10	60	14
71	10.04	10.03	33.754	25.976	203.6	0.173	2.94	127.8	46.1	23.9	1.81	22.5	0.03	0.10	0.02	0.09	72	13
75 ISL	9.92 D	9.92	33.837 D	26.060	195.8	0.182	2.78	D121.0 D	43.6	25.2	1.86	23.2	0.03	0.12	0.02	0.09	76	
85	9.60	9.59	33.865	26.136	188.7	0.200	2.58	D112.2 D	40.1	28.4	1.97	25.0	0.02	0.16	0.01	0.09	86	12
100 ISL	9.53 D	9.52	33.940 D	26.207	182.4	0.230	2.36	D102.5 D	36.6	29.8	2.04	25.8	0.02	0.15	0.01	0.08	101	
101	9.52	9.51	33.930	26.200	183.0	0.230	2.37	103.1	36.8	29.9	2.04	25.8	0.02	0.15	0.01	0.08	102	11
121	9.32	9.30	34.013	26.299	174.0	0.266	2.10	91.4	32.5	32.6	2.13	27.1	0.00	0.18	0.00	0.10	122	10
125 ISL	9.25 D	9.23	34.010 D	26.308	173.2	0.274	2.10	D 91.4 D	32.5	33.2	2.15	27.4	0.00	0.16	0.00	0.10	126	
141	8.93	8.92	34.041	26.383	166.4	0.300	1.93	84.2	29.7	35.8	2.21	28.6	0.00	0.08	0.01	0.09	142	09
150 ISL	8.88 D	8.86	34.056 D	26.404	164.6	0.317	1.87	D 81.4 D	28.7	36.5	2.23	28.8	0.00	0.09	0.01	0.09	151	
169	8.81	8.79	34.085	26.438	161.7	0.346	1.77	76.8	27.0	37.8	2.27	29.3	0.00	0.12	0.01	0.08	170	08
200	8.45	8.43	34.145	26.541	152.5	0.394	1.43	62.3	21.8	42.2	2.43	31.0	0.00	0.12	0.01	0.07	202	07
230	8.22	8.20	34.187	26.609	146.5	0.439	1.18	51.5	17.9	46.4	2.54	32.0	0.00	0.14			232	06
250 ISL	8.03 D	8.00	34.204 D	26.652	142.7	0.472	1.03	D 44.8 D	15.5	48.4	2.59	32.6	0.00	0.12			252	
271	7.91	7.88	34.210	26.675	141.0	0.498	0.97	42.1	14.5	50.5	2.65	33.2	0.00	0.09			273	05
300 ISL	7.62 D	7.59	34.235 D	26.738	135.4	0.542	0.81	D 35.3 D	12.1	53.9	2.72	34.0	0.00	0.11			302	
321	7.44	7.41	34.246	26.772	132.4	0.566	0.69	30.2	10.3								324	04
380	7.12	7.09	34.278	26.843	126.4	0.642	0.48	20.8	7.0	63.4	2.92	36.2	0.00	0.18			383	03
400 ISL	6.99 D	6.95	34.285 D	26.868	124.3	0.673	0.43	D 18.5 D	6.3	65.3	2.95	36.5	0.00	0.16			403	
440	6.79	6.75	34.300	26.907	121.2	0.717	0.33	14.5	4.9	69.1	3.01	37.1	0.00	0.12			444	02
500 ISL	6.41 D	6.36	34.323 D	26.978	115.0	0.794	0.26	D 11.1 D	3.7								504	
515	6.30	6.25	34.322 D	26.991	113.9	0.811	0.25	D 11.0 D	3.7								519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 19.5 N	119 39.6 W	15/04/2013	1214 UTC	73 m	320 25 kn			1011.6 mb	12.2 C	11.6 C				035

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.51	12.51	33.659	25.451	251.8	0.000	5.75	250.2	95.2	9.9	0.86	8.0	0.12	0.17	2.70	0.79	0	
3	12.51	12.50	33.659	25.452	251.9	0.008	5.75	250.2	95.2	9.9	0.86	8.0	0.12	0.17	2.70	0.79	3	10
5	12.52	12.52	33.658	25.449	252.2	0.013	5.72	249.2	94.8	10.0	0.86	8.1	0.12	0.12	2.83	0.73	5	09
10	12.44	12.43	33.669	25.473	250.1	0.025											10	08
10	12.42	12.42	33.656	25.467	250.6	0.025	5.76	251.0	95.3	9.8	0.85	7.9	0.12	0.14	2.76	0.74	10	07
20	11.89	11.89	33.711	25.610	237.3	0.050	5.05	219.8	82.5	14.2	1.18	12.4	0.16	0.33	1.45	0.70	20	06
30 ISL	11.31 D	11.30	33.744 D	25.744	224.8	0.073	4.55	D198.1 D	73.5	16.6	1.33	14.7	0.18	0.50	0.79	0.55	30	
31	10.77	10.77	33.791 D	25.876	212.2	0.075	3.78	D164.5 D	60.4	16.8	1.35	14.9	0.18	0.52	0.72	0.54	31	05
41	9.81	9.80	33.873	26.106	190.5	0.095	2.80	121.8	43.8	28.1	1.92	24.0	0.13	0.17	0.17	0.30	41	04
49	9.39	9.39	33.921	26.212	180.7	0.110	2.41	104.8	37.3	31.5	2.07	26.2	0.11	0.18	0.09	0.28	49	03
50 ISL	9.39 D	9.39	33.919 D	26.211	180.8	0.113	2.42	D105.4 D	37.6	31.7	2.07	26.3	0.11	0.18	0.09	0.28	50	
60	9.20	9.19	33.939	26.258	176.5	0.130	2.27	98.7	35.0	33.3	2.11	27.0	0.10	0.13	0.06	0.26	60	02
69	9.20	9.19	33.940	26.260	176.6	0.145	2.27	98.8	35.1	33.3	2.12	27.0	0.10	0.11	0.07	0.22	70	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 9.1 N	120 1.1 W	15/04/2013	1641 UTC	1201 m	320 25 kn	320 08 06	2	1013.8 mb	12.9 C	11.9 C	15 m	8/8	SC	036

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.92	11.92	33.676	25.577	239.9	0.000	5.75	250.4	94.1	10.4	1.05	10.0	0.15	0.86	0.68	0.58	0	
2 A	11.92	11.92	33.676	25.577	240.0	0.005	5.75	250.4	94.1	10.4	1.05	10.0	0.15	0.86	0.68	0.58	2	22
9	11.91	11.91	33.675	25.578	240.1	0.021											9	21
9 A	11.91	11.91	33.679	25.581	239.8	0.022	5.74	249.9	93.9	10.6	1.07	10.1	0.16	0.85	0.71	0.60	9	20
10 ISL	11.91 D	11.91	33.674 D	25.577	240.1	0.024	5.76	D251.0 D	94.3	10.6	1.07	10.1	0.16	0.85	0.69	0.60	10	
13 A	11.91	11.91	33.675	25.578	240.2	0.031	5.75	250.4	94.0	10.6	1.08	10.1	0.16	0.86	0.62	0.59	13	19
20 ISL	11.91 D	11.90	33.674 D	25.579	240.3	0.048	5.76	D250.9 D	94.2	10.6	1.09	10.1	0.16	0.86	0.64	0.54	20	
24 A	11.91	11.90	33.674	25.579	240.4	0.058	5.73	249.7	93.8	10.6	1.09	10.1	0.16	0.86	0.66	0.51	24	18
30 ISL	11.88 D	11.87	33.675 D	25.585	240.0	0.073	5.74	D249.8 D	93.8	10.6	1.09	10.2	0.16	0.93	0.64	0.60	30	
35	11.87	11.87	33.676	25.587	239.9	0.084	5.72	249.2	93.5	10.7	1.09	10.2	0.16	0.98	0.63	0.68	35	17
45 A	11.75	11.75	33.677	25.611	237.9	0.108	5.54	241.0	90.2	11.1	1.12	10.7	0.17	1.03	0.52	0.70	45	16
50 ISL	11.22 D	11.22	33.696 D	25.723	227.4	0.121	5.20	D226.4 D	83.8	15.2	1.34	14.3	0.23	0.96	0.36	0.77	50	
52 A	10.98	10.97	33.695	25.767	223.2	0.124	4.31	187.6	69.1	16.9	1.43	15.7	0.26	0.93	0.30	0.80	52	15
60	10.18	10.17	33.740	25.941	206.7	0.141	3.14	136.5	49.4	23.4	1.76	22.0	0.17	0.14	0.13	0.77	60	14
71	9.96	9.96	33.781 D	26.010	200.5	0.165	2.89	D125.6 D	45.3	26.0	1.88	23.6	0.10	0.10	0.07	0.48	72	13
75 ISL	9.89 D	9.88	33.816 D	26.049	196.8	0.173	2.84	D123.7 D	44.5	26.4	1.90	23.8	0.10	0.11	0.06	0.48	76	
88	9.78	9.77	33.848	26.094	192.8	0.197	2.61	113.4	40.7	27.4	1.95	24.4	0.08	0.16	0.04	0.48	89	12
100	9.49	9.48	33.897	26.179	184.9	0.220	2.35	102.3	36.5	29.9	2.04	26.0	0.06	0.16	0.04	0.40	101	10
122	9.29	9.28	33.934	26.242	179.4	0.260	2.21	96.2	34.2	31.7	2.11	27.0	0.07	0.12	0.03	0.29	123	11
125 ISL	9.26 D	9.24	33.937 D	26.249	178.8	0.267	2.21	D 96.0 D	34.1	31.9	2.11	27.1	0.07	0.12	0.02	0.29	126	
140	8.93	8.92	33.942	26.306	173.7	0.291	2.29	99.5	35.1	32.7	2.10	27.3	0.09	0.10	0.02	0.24	141	09
150 ISL	8.75 D	8.73	33.984 D	26.367	168.0	0.311	2.17	D 94.4 D	33.2	34.3	2.14	28.0	0.08	0.09	0.01	0.23	151	
169	8.55	8.53	34.025	26.431	162.3	0.340	1.97	85.6	30.0	37.5	2.23	29.3	0.06	0.08	0.01	0.19	170	08
200	8.10	8.07	34.119	26.574	149.2	0.388	1.45	63.0	21.8	44.8	2.47	31.9	0.03	0.21	0.01	0.13	202	07
230	7.66	7.64	34.168	26.677	139.8	0.432	1.11	48.3	16.6	51.1	2.63	33.6	0.00	0.07			232	06
250 ISL	7.51 D	7.48	34.197 D	26.723	135.8	0.462	0.98	D 42.6 D	14.6	53.5	2.70	34.2	0.00	0.08			252	
275	7.39	7.36	34.216	26.755	133.1	0.493	0.80	34.7	11.8	56.5	2.78	35.0	0.00	0.09			277	05
300 ISL	7.26 D	7.23	34.252 D	26.802	129.0	0.529	0.61	D 26.4 D	9.0	59.0	2.84	35.6	0.00	0.15			302	
320	7.17	7.14	34.255 D	26.817	127.9	0.555	0.58	25.3	8.6	61.1	2.88	36.0	0.00	0.19			323	04
382	6.65	6.62	34.285	26.912	119.5	0.628	0.44	19.0	6.4	69.1	3.00	37.5	0.00	0.27			385	03
400 ISL	6.46 D	6.43	34.291 D	26.942	116.8	0.654	0.36	D 15.7 D	5.2	71.0	3.03	37.8	0.00	0.20			403	
443	6.25	6.21	34.311	26.987	113.0	0.699	0.28	12.0	4.0	75.6	3.09	38.6	0.00	0.03			447	02
500 ISL	5.89 D	5.85	34.334 D	27.051	107.5	0.767	0.24	D 10.6 D	3.5	81.3	3.13	39.5	0.00	0.04			504	
523	5.85	5.80	34.341	27.063	106.6	0.786	0.21	9.2	3.0	83.6	3.15	39.8	0.00	0.04			527	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 59.2 N	120 21.6 W	17/04/2013	0906 UTC	711 m	320 25 kn			1020.2 mb	12.1 C	11.9 C				043

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	11.82	11.82	33.690	25.606	237.1	0.000	5.75	250.5	93.9	8.7	1.00	9.9	0.13	1.10	0.98	0.72	0	
3	11.82	11.82	33.690	25.607	237.2	0.007	5.75	250.5	93.9	8.7	1.00	9.9	0.13	1.10	0.98	0.72	3	21
10	11.82	11.82	33.686	25.603	237.7	0.024	5.75	250.6	94.0	8.5	1.00	9.8	0.13	0.97	0.99	0.82	10	19
11	11.82	11.82	33.685	25.602	237.8	0.026											11	20
20	11.83	11.83	33.683	25.600	238.3	0.048	5.75	250.3	93.9	8.5	1.02	9.9	0.13	1.00	1.03	0.75	20	18
30 ISL	11.82 D	11.82	33.684 D	25.603	238.3	0.072	5.75	D250.6 D	93.9	8.9	1.03	10.1	0.13	1.00	1.08	0.78	30	
31	11.83	11.82	33.683	25.601	238.4	0.074	5.76	250.7	94.0	8.9	1.03	10.1	0.13	1.00	1.08	0.78	31	17
41	11.78	11.77	33.686	25.612	237.6	0.098	5.71	248.6	93.1	12.2	1.12	11.9	0.13	0.76	0.92	0.67	41	16
50	11.65	11.65	33.706	25.652	234.1	0.119	5.45	237.5	88.7	14.7	1.23	13.6	0.13	0.76	1.04	0.62	50	15
60	11.45	11.44	33.728	25.708	229.1	0.142	5.06	220.4	82.0	16.9	1.40	15.5	0.12	1.01	0.92	0.57	60	14
70	10.95	10.94	33.765	25.827	218.0	0.164	4.46	194.3	71.5	22.7	1.66	21.0	0.16	0.41	0.41	0.59	71	13
75 ISL	10.79 D	10.78	33.786 D	25.871	213.8	0.176	4.02	D175.1 D	64.3	24.2	1.72	22.2	0.13	0.31	0.32	0.51	76	
86	10.03	10.02	33.759	25.981	203.5	0.198	3.46	150.8	54.4	27.5	1.86	24.9	0.05	0.08	0.13	0.34	87	12
100 ISL	9.35 D	9.34	33.815 D	26.138	188.8	0.227	2.85	D124.0 D	44.1						0.05	0.25	101	
101	9.34	9.33	33.814	26.138	188.8	0.228	2.83	123.3	43.9						0.05	0.24	102	11
121	8.92	8.91	33.918	26.287	175.0	0.264	2.56	111.4	39.3	31.2	1.98	26.6	0.03	0.13	0.03	0.17	122	10
125 ISL	8.87 D	8.86	33.961 D	26.330	171.1	0.272	2.33	D101.3 D	35.7	32.0	2.01	27.0	0.03	0.13	0.02	0.17	126	
141	8.68	8.67	33.995	26.386	166.0	0.298	2.19	95.2	33.4	35.3	2.12	28.5	0.02	0.11	0.02	0.16	142	09
150 ISL	8.61 D	8.60	34.011 D	26.410	163.9	0.314	2.15	D 93.6 D	32.8	36.6	2.15	29.0	0.02	0.11	0.02	0.15	151	
171	8.37	8.35	34.052	26.479	157.7	0.346	1.92	83.7	29.2	39.6	2.23	30.1	0.02	0.11	0.01	0.13	172	08
200	8.14	8.12	34.090	26.545	151.9	0.391	1.69	73.4	25.4	43.1	2.34	31.2	0.00	0.10	0.01	0.10	202	07
231	8.02	7.99	34.106	26.576	149.5	0.438	1.57	68.3	23.6	44.9	2.39	31.7	0.00	0.06			233	06
250 ISL	7.93 D	7.91	34.163 D	26.634	144.4	0.469	1.40	D 61.0 D	21.1	47.1	2.47	32.2	0.00	0.06			252	
270	7.86	7.83	34.172	26.652	143.0	0.495	1.18	51.4	17.7	49.4	2.55	32.7	0.00	0.07			272	05
300 ISL	7.56 D	7.53	34.194 D	26.714	137.6	0.540	0.97	D 42.2 D	14.4	52.8	2.63	33.7	0.00	0.06			302	
319	7.51	7.48	34.198	26.725	136.8	0.563	0.93	40.2	13.8	54.9	2.68	34.3	0.00	0.06			322	04
382	6.89	6.85	34.248	26.852	125.4	0.645	0.57	24.6	8.3	65.4	2.89	36.8	0.00	0.08			385	03
400 ISL	6.70 D	6.66	34.253 D	26.881	122.8	0.672	0.52	D 22.7 D	7.6	68.0	2.93	37.3	0.00	0.08			403	
442	6.31	6.27	34.277	26.952	116.4	0.718	0.39	16.9	5.6	74.2	3.03	38.6	0.00	0.09			446	02
500 ISL	5.98 D	5.93	34.307 D	27.019	110.5	0.790	0.30	D 13.0 D	4.3	80.6	3.09	39.6	0.00	0.10			504	
514	5.83	5.78	34.315	27.044	108.2	0.799	0.28	12.1	4.0	82.1	3.11	39.9	0.00	0.10			518	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 39.7 N	121 2.3 W	17/04/2013	1720 UTC	3805 m	350 22 kn	340 10 07	0	1023.1 mb	14.4 C	13.0 C	15 m	0/8		044

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.15	13.15	33.504	25.205	275.2	0.000	6.03	262.6	101.1	4.6	0.58	3.3	0.13	0.17	0.72	0.22	0	
2 A	13.15	13.15	33.504	25.205	275.3	0.006	6.03	262.6	101.1	4.6	0.58	3.3	0.13	0.17	0.72	0.22	2	22
10 ISL	13.15 D	13.14	33.503 D	25.206	275.5	0.028	6.04	D263.0	D101.2	4.6	0.58	3.2	0.13	0.17	0.67	0.24	10	
11 A	13.14	13.14	33.504	25.207	275.4	0.030	6.05	263.4	101.4	4.6	0.58	3.2	0.13	0.17	0.66	0.25	11	20
12	13.13	13.13	33.503	25.208	275.3	0.032											12	21
14 A	13.15	13.15	33.506	25.207	275.5	0.039	6.02	262.3	101.0	4.5	0.58	3.2	0.13	0.18	0.74	0.16	14	19
20 ISL	13.14 D	13.14	33.504 D	25.207	275.7	0.055	6.03	D262.6	D101.1	4.6	0.58	3.3	0.13	0.20	0.76	0.13	20	
24 A	13.12	13.12	33.517	25.222	274.4	0.066	6.01	261.9	100.8	4.6	0.58	3.3	0.13	0.21	0.78	0.11	24	18
30 ISL	13.10 D	13.09	33.508 D	25.220	274.8	0.083	6.02	D262.1	D100.8	4.7	0.60	3.5	0.14	0.27	0.73	0.15	30	
34	13.07	13.06	33.518	25.234	273.5	0.094	5.98	260.7	100.2	4.8	0.62	3.7	0.14	0.31	0.70	0.18	34	17
44 A	12.96	12.95	33.528	25.265	270.9	0.121	5.93	258.1	99.0	5.2	0.69	4.4	0.15	0.59	0.55	0.26	44	16
50 ISL	12.95 D	12.94	33.528 D	25.266	270.9	0.138	5.94	D258.6	D 99.1	5.2	0.68	4.4	0.15	0.57	0.63	0.16	50	
52 A	12.94	12.93	33.534	25.272	270.4	0.143	5.91	257.3	98.6	5.3	0.68	4.4	0.15	0.56	0.66	0.13	52	15
61	12.57	12.56	33.519	25.335	264.7	0.167	5.84	254.2	96.7	5.6	0.71	5.0	0.17	0.47	0.50	0.17	61	14
70	11.98	11.98	33.485	25.420	256.8	0.190	5.35	232.8	87.5	8.1	0.89	8.2	0.17	0.27	0.28	0.15	71	13
75 ISL	11.56 D	11.55	33.454 D	25.475	251.6	0.204	5.23	D227.7	D 84.7	9.3	0.96	9.6	0.13	0.20	0.23	0.16	76	
86	10.95	10.94	33.443	25.576	242.1	0.230	4.70	204.8	75.2	12.0	1.11	12.6	0.04	0.06	0.12	0.17	87	12
100	10.22	10.21	33.543 D	25.781	222.9	0.264	4.32	188.0	68.0	15.0	1.31	15.6	0.04	0.03	0.07	0.13	101	11
121	9.58	9.57	33.688	26.002	202.3	0.307	3.36	146.3	52.3	22.6	1.73	22.2	0.03	0.06	0.03	0.09	122	10
125 ISL	9.50 D	9.49	33.719 D	26.039	198.8	0.317	3.30	D143.6	D 51.2	23.4	1.75	22.6	0.03	0.06	0.03	0.09	126	
138	9.31	9.29	33.787	26.125	190.9	0.341	3.12	135.6	48.2	25.8	1.83	24.0	0.02	0.06	0.02	0.07	139	09
150 ISL	9.05 D	9.03	33.890 D	26.246	179.6	0.365	2.68	D116.8	D 41.3	28.5	1.91	25.3	0.01	0.08	0.01	0.07	151	
170	8.64	8.62	33.957	26.364	168.7	0.398	2.54	110.6	38.7	33.1	2.05	27.5	0.00	0.10	0.00	0.07	171	08
200 ISL	8.15 D	8.13	34.014 D	26.484	157.7	0.450	2.38	D103.4	D 35.8	37.7	2.15	28.9	0.00	0.04	0.01	0.05	202	
202	8.12	8.10	34.019	26.492	157.0	0.450	2.35	102.4	35.5	38.0	2.16	29.0	0.00	0.04	0.01	0.05	204	07
229	7.83	7.81	34.041	26.552	151.7	0.491	2.07	89.9	31.0	42.5	2.28	30.6	0.00	0.02			231	06
250 ISL	7.68 D	7.66	34.063 D	26.592	148.2	0.527	1.84	D 79.9	D 27.4	45.9	2.38	31.8	0.00	0.04			252	
270	7.37	7.34	34.077	26.648	143.1	0.552	1.61	70.1	23.9	49.2	2.48	33.0	0.00	0.05			272	05
300 ISL	7.14 D	7.11	34.099 D	26.697	138.8	0.599	1.33	D 57.9	D 19.6	53.6	2.60	34.4	0.00	0.05			302	
319	6.99	6.96	34.114	26.732	135.8	0.620	1.16	50.6	17.1	56.3	2.67	35.3	0.00	0.05			322	04
380	6.54	6.51	34.171	26.837	126.5	0.700	0.73	31.9	10.7	64.7	2.87	37.4	0.00	0.07			383	03
400 ISL	6.34 D	6.31	34.191 D	26.878	122.7	0.731	0.62	D 26.9	D 9.0	67.7	2.91	38.0	0.00	0.07			403	
441	6.08	6.04	34.205	26.925	118.6	0.775	0.50	21.8	7.2	73.9	3.00	39.2	0.00	0.08			445	02
500 ISL	5.73 D	5.69	34.250 D	27.004	111.7	0.849	0.36	D 15.7	D 5.1	80.6	3.10	40.2	0.00	0.10			504	
515	5.69	5.65	34.266	27.022	110.1	0.859	0.32	14.0	4.6	82.2	3.12	40.5	0.00	0.10			519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 19.6 N	121 43.2 W	18/04/2013	0048 UTC	4005 m	330 22 kn	340 06 06	0	1022.7 mb	13.4 C	11.5 C		0/8		045

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.39	13.39	33.451	25.115	283.8	0.000	6.06	265.0	102.0	4.3	0.46	1.9	0.10	0.13	0.66	0.17	0	
2	13.39	13.39	33.451	25.115	283.9	0.006	6.06	263.8	102.0	4.3	0.46	1.9	0.10	0.13	0.66	0.17	2	20
10	13.39	13.39	33.452	25.117	283.9	0.028	6.06	264.0	102.1	4.3	0.44	1.8	0.10	0.12	0.64	0.18	10	19
20	13.38	13.38	33.458	25.125	283.5	0.057	6.05	263.7	102.0	4.3	0.42	1.8	0.09	0.12	0.65	0.17	20	18
30	13.35	13.34	33.455	25.129	283.4	0.085	6.05	263.5	101.8	4.2	0.40	1.8	0.09	0.17	0.61	0.18	30	17
40	13.31	13.30	33.449	25.133	283.3	0.113	6.04	263.0	101.5	4.2	0.38	1.8	0.09	0.15	0.62	0.20	40	16
50	13.25	13.25	33.446	25.142	282.7	0.142	6.03	262.9	101.4	4.3	0.37	1.8	0.09	0.22	0.65	0.20	50	15
60	13.24	13.24	33.447	25.145	282.8	0.170	6.01	262.0	101.0	4.3	0.36	1.9	0.10	0.24	0.65	0.30	60	14
70	13.23	13.22	33.446	25.149	282.7	0.198	5.99	260.9	100.6	4.3	0.33	1.9	0.10	0.20	0.59	0.19	71	13
75 ISL	12.96 D	12.95	33.444 D	25.200	278.0	0.214	5.96	D259.7	D 99.5	6.3	0.52	5.0	0.09	0.16	0.43	0.15	76	
85	11.01	11.00	33.366	25.506	248.8	0.239	4.86	211.4	77.7	10.3	0.89	11.2	0.06	0.07	0.11	0.09	86	12
100 ISL	10.54 D	10.52	33.457 D	25.660	234.4	0.277	4.38	D190.7	D 69.4	13.8	1.12	14.9	0.03	0.08	0.06	0.07	101	
101	10.54	10.52	33.464	25.666	233.9	0.277	4.37	190.2	69.3	14.0	1.13	15.1	0.03	0.08	0.06	0.07	102	11
120	9.72	9.71	33.589	25.901	211.8	0.319	3.92	170.6	61.1	18.8	1.37	19.2	0.02	0.13	0.03	0.04	121	10
125 ISL	9.55 D	9.53	33.649 D	25.977	204.7	0.333	3.83	D166.8	D 59.5	20.1	1.43	20.1	0.02	0.12	0.03	0.04	126	
140	9.34	9.32	33.741	26.084	194.8	0.360	3.34	145.5	51.7	24.0	1.59	22.9	0.00	0.07	0.01	0.05	141	09
150 ISL	9.25 D	9.23	33.761 D	26.114	192.2	0.382	3.40	D147.9	D 52.5	26.0	1.65	23.9	0.00	0.08	0.01	0.06	151	
170	8.78	8.77	33.896	26.294	175.4	0.416	2.88	125.1	44.0	30.0	1.78	26.0	0.00	0.10	0.01	0.06	171	08
200	8.41	8.39	33.971	26.411	164.7	0.467	2.58	112.3	39.1	34.6	1.90	27.9	0.00	0.18	0.01	0.05	202	07
229	8.04	8.02	34.011	26.499	156.8	0.514	2.25	97.7	33.8	38.8	2.00	29.6	0.00	0.09			231	06
250 ISL	7.72 D	7.70	34.050 D	26.576	149.7	0.550	1.91	D 83.3	D 28.6	43.7	2.13	31.2	0.00	0.08			252	
270	7.47	7.44	34.071	26.629	145.0	0.575	1.63	71.0	24.3	48.4	2.26	32.7	0.00	0.07			272	05
300 ISL	7.27 D	7.24	34.120 D	26.697	139.0	0.623	1.20	D 52.3	D 17.8	53.6	2.42	34.3	0.00	0.08			302	
320	7.11	7.08	34.148	26.741	135.0	0.645	0.95	41.3	14.0	57.0	2.53	35.4	0.00	0.08			323	04
380	6.69	6.66	34.188	26.830	127.2	0.724	0.66	28.8	9.7	64.6	2.67	37.1	0.00	0.10			383	03
400 ISL	6.62 D	6.58	34.205 D	26.854	125.2	0.755	0.61	D 26.4	D 8.9	66.6	2.71	37.4	0.00	0.15			403	
440	6.43	6.39	34.234	26.903	121.1	0.799	0.48	20.9	7.0	70.5	2.78	38.1	0.00	0.24			444	02
500 ISL	6.03 D	5.99	34.258 D	26.974	114.9	0.876	0.38	D 16.6	D 5.5	76.7	2.83	39.1	0.00	0.18			504	
515	5.95	5.91	34.259	26.984	114.0	0.887	0.37	D 15.9	D 5.2	78.3	2.84	39.4	0.00	0.16			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 59.0 N	122 23.6 W	18/04/2013	0626 UTC	4109 m	340 23 kn			1025.1 mb	13.1 C	11.0 C				046

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.77	13.77	33.216	24.856	308.5	0.000	6.00	261.5	101.8	3.0	0.33	0.1	0.00	0.19	0.24	0.07	0	
3	13.77	13.77	33.216	24.856	308.6	0.009	6.00	261.5	101.8	3.0	0.33	0.1	0.00	0.19	0.24	0.07	3	22
10	13.78	13.78	33.218	24.857	308.7	0.031	6.01	261.7	101.9	2.9	0.32	0.0	0.00	0.12	0.23	0.09	10	20
11	13.78	13.78	33.216	24.855	308.9	0.033											11	21
20 ISL	13.78 D	13.78	33.216 D	24.855	309.2	0.062	6.02	D262.5	D102.2	2.9	0.33	0.1	0.00	0.39	0.23	0.08	20	
25	13.79	13.78	33.219	24.858	309.1	0.077	6.01	261.8	101.9	2.9	0.33	0.2	0.00	0.52	0.23	0.07	25	19
30 ISL	13.77 D	13.77	33.216 D	24.858	309.2	0.093	6.02	D262.5	D102.2	2.9	0.33	0.1	0.00	0.38	0.23	0.08	30	
40	13.78	13.77	33.219	24.860	309.3	0.124	6.00	261.6	101.8	2.9	0.32	0.0	0.00	0.10	0.24	0.10	40	18
50	13.73	13.72	33.217	24.870	308.7	0.155	6.01	262.0	101.9	2.9	0.32	0.0	0.00	0.13	0.26	0.08	50	17
62	13.70	13.69	33.220	24.878	308.3	0.192	6.00	261.4	101.6	3.0	0.32	0.0	0.00	0.16	0.31	0.10	62	16
75	12.48	12.47	33.130	25.051	292.0	0.231	5.96	259.5	98.3	3.6	0.43	1.2	0.13	0.24	0.47	0.25	76	14
87	11.92	11.91	33.130	25.156	282.3	0.265	5.98	260.6	97.5	4.2	0.52	2.2	0.15	0.32	0.29	0.18	88	13
100	11.40	11.38	33.177	25.290	269.8	0.301	5.63	245.4	90.8	6.4	0.71	5.8	0.04	0.07	0.09	0.08	101	12
112	10.90	10.89	33.268	25.450	254.8	0.333	5.22	227.3	83.3	8.6	0.88	8.9	0.02	0.09	0.04	0.05	113	11
125	10.30	10.29	33.334	25.605	240.2	0.365	4.87	211.9	76.7	11.2	1.07	12.1	0.02	0.11	0.03	0.04	126	10
140	9.88	9.86	33.384	25.717	229.8	0.400	4.57	198.9	71.4	14.5	1.27	15.2	0.02	0.13	0.02	0.03	141	09
150 ISL	9.59 D	9.58	33.570 D	25.909	211.7	0.425	4.22	D183.8	D 65.6	17.1	1.38	17.1	0.02	0.13	0.01	0.03	151	
171	9.11	9.09	33.730	26.113	192.7	0.465	3.86	167.8	59.3	22.4	1.60	21.2	0.02	0.14	0.01	0.02	172	08
200	8.74	8.71	33.858	26.273	178.0	0.519	3.67	159.8	56.1	26.2	1.69	23.7	0.02	0.22	0.00	0.02	202	07
231	8.39	8.36	33.949	26.398	166.6	0.572	3.08	133.8	46.6	32.1	1.93	26.0	0.00	0.08			233	06
250 ISL	8.10 D	8.08	33.977 D	26.463	160.7	0.607	2.82	D122.7	D 42.5	36.5	2.12	28.4	0.00	0.08			252	
271	7.99	7.96	34.046	26.535	154.2	0.636	1.89	82.1	28.4	41.4	2.33	31.1	0.00	0.08			273	05
300 ISL	7.33 D	7.30	34.010 D	26.601	148.0	0.684	2.18	D 95.0	D 32.3	46.4	2.37	32.0	0.00	0.09			302	
320	6.93	6.90	34.011	26.657	142.7	0.709	2.05	89.0	30.0	49.8	2.39	32.6	0.00	0.09			323	04
382	6.38	6.34	34.089	26.793	130.4	0.794	1.11	48.4	16.1	63.2	2.75	37.1	0.00	0.11			385	03
400 ISL	6.28 D	6.24	34.117 D	26.828	127.3	0.822	0.89	D 38.6	D 12.8	65.4	2.81	37.6	0.00	0.12			403	
440	6.14	6.10	34.160	26.882	122.8	0.867	0.70	30.6	10.1	70.3	2.93	38.6	0.00	0.15			444	02
500 ISL	5.70 D	5.66	34.183 D	26.955	116.2	0.945	0.56	D 24.5	D 8.0	77.3	3.03	39.9	0.00	0.16			504	
515	5.69	5.65	34.198	26.968	115.1	0.956	0.51	22.0	7.2	79.0	3.05	40.2	0.00	0.16			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 39.1 N	123 4.2 W	18/04/2013	1240 UTC	4153 m	330 23 kn			1024.3 mb	13.1 C	11.6 C				047

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.34	15.34	33.497	24.741	319.4	0.000	5.78	252.0	101.4	2.8	0.28	0.0	0.00	0.07	0.10	0.03	0	
2	15.34	15.33	33.497	24.741	319.5	0.006	5.78	252.0	101.4	2.8	0.28	0.0	0.00	0.07	0.10	0.03	2	21
10 ISL	15.35 D	15.35	33.491 D	24.728	321.0	0.032	5.79	D252.3	D101.6	2.7	0.28	0.0	0.00	0.04	0.10	0.03	10	
10	15.35	15.35	33.493	24.734	320.4	0.033											10	20
11	15.35	15.35	33.490	24.733	320.6	0.035	5.78	252.1	101.5	2.7	0.28	0.0	0.00	0.06	0.10	0.03	11	19
20 ISL	15.35 D	15.35	33.492 D	24.729	321.3	0.064	5.79	D252.3	D101.5	2.7	0.28	0.0	0.00	0.04	0.10	0.02	20	
25	15.36	15.36	33.493	24.734	320.9	0.080	5.78	252.1	101.5	2.7	0.28	0.0	0.00	0.05	0.10	0.01	25	18
30 ISL	15.36 D	15.36	33.492 D	24.729	321.6	0.097	5.78	D251.7	D101.3	2.7	0.28	0.0	0.00	0.05	0.10	0.02	30	
40	15.35	15.34	33.490	24.735	321.3	0.128	5.77	251.6	101.2	2.7	0.28	0.0	0.00	0.06	0.10	0.02	40	17
50 ISL	15.36 D	15.35	33.485 D	24.730	322.1	0.162	5.78	D251.8	D101.3	2.7	0.27	0.0	0.00	0.09	0.10	0.02	50	
51	15.36	15.35	33.484	24.729	322.3	0.164	5.78	251.7	101.3	2.7	0.27	0.0	0.00	0.10	0.10	0.02	51	16
63	14.97	14.96	33.433 D	24.776	318.2	0.204	5.78	252.0	100.6					0.00	0.11	0.03	64	15
75	13.66	13.65	33.240	24.901	306.5	0.240	6.05	263.4	102.3	2.9	0.31	0.0	0.00	0.12	0.25	0.10	76	14
88	13.36	13.35	33.219	24.947	302.5	0.279	6.02	262.4	101.2	2.9	0.32	0.0	0.00	0.06	0.36	0.21	89	13
100 ISL	13.30 D	13.29	33.231 D	24.969	300.7	0.318	5.93	D258.5	D 99.6	3.0	0.35	0.1	0.04	0.09	0.53	0.28	101	
101	13.30	13.28	33.231	24.970	300.6	0.319	5.93	258.3	99.5	3.0	0.35	0.1	0.04	0.09	0.55	0.28	102	12
115	12.73	12.71	33.211	25.067	291.7	0.360	5.81	253.0	96.3	3.5	0.45	1.3	0.18	0.12	0.29	0.21	116	11
125 ISL	11.89 D	11.87	33.233 D	25.244	274.9	0.391	5.56	D242.4	D 90.7	5.1	0.60	4.1	0.03	0.11	0.19	0.14	126	
126	11.80	11.78	33.220	25.251	274.3	0.391	5.54	241.3	90.1	5.3	0.61	4.4	0.02	0.11	0.18	0.13	127	10
140	11.06	11.04	33.387 D	25.516	249.3	0.431	5.00	217.7	80.1	8.7	0.92	9.5	0.00	0.09	0.11	0.08	141	09
150 ISL	10.43 D	10.41	33.445 D	25.672	234.5	0.455	4.94	D215.1	D 78.1	11.8	1.11	12.5	0.00	0.11	0.08	0.07	151	
170	9.92	9.90	33.587	25.869	216.1	0.497	4.01	174.6	62.8	17.9	1.49	18.6	0.00	0.16	0.03	0.04	171	08
200	9.10	9.08	33.800	26.170	187.9	0.558	3.67	159.6	56.4	24.0	1.67	22.1	0.00	0.14	0.00	0.02	202	07
231	8.64	8.62	33.910	26.328	173.3	0.614	3.40	147.8	51.8	28.6	1.80	24.2	0.00	0.10			233	06
250 ISL	8.35 D	8.33	33.965 D	26.416	165.2	0.651	3.07	D133.6	D 46.5	33.2	1.96	26.3	0.00	0.08			252	
270	7.97	7.94	33.998	26.500	157.5	0.678	2.61	113.5	39.2	38.0	2.12	28.5	0.00	0.05			272	05
300 ISL	7.53 D	7.50	34.047 D	26.602	148.1	0.729	1.99	D 86.5	D 29.6	44.2	2.31	31.0	0.00	0.06			302	
320	7.35	7.32	34.057	26.637	145.0	0.753	1.81	78.9	26.9	48.4	2.43	32.6	0.00	0.06			323	04
381	6.74	6.70	34.127	26.776	132.4	0.838	1.03	44.7	15.0	60.2	2.77	36.3	0.00	0.12			384	03
400 ISL	6.63 D	6.59	34.157 D	26.815	128.9	0.869	0.85	D 37.1	D 12.4	62.7	2.82	36.8	0.00	0.12			403	
440	6.31	6.27	34.162	26.861	124.9	0.913	0.74	32.2	10.7	68.0	2.92	38.0	0.00	0.13			444	02
500 ISL	5.86 D	5.82	34.204 D	26.952	116.7	0.993	0.53	D 22.9	D 7.5	76.4	3.05	39.4	0.00	0.16			504	
516	5.78	5.73	34.217	26.973	114.8	1.004	0.47	20.5	6.7	78.6	3.09	39.8	0.00	0.17			520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.8 32.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 52.8 N	118 27.1 W	10/04/2013	0640 UTC	42 m	350 11 kn			1015.6 mb	17.8 C	12.5 C				015

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.75	14.75	33.597	24.945	300.0	0.000	6.02	262.1	104.3	2.4	0.30	0.7	0.09		4.44	0.85	0	
2	14.75	14.75	33.597	24.945	300.0	0.006	6.02	262.1	104.3	2.4	0.30	0.7	0.09		4.44	0.85	2	05
5	14.53	14.53	33.597	24.993	295.6	0.015	6.01	261.8	103.7	2.5	0.31	0.8	0.10		4.14	0.97	5	04
10	11.55	11.54	33.605	25.592	238.8	0.028	4.30	187.3	69.8	14.3	1.20	13.5	0.14		1.52	0.56	10	03
20	10.92	10.92	33.639	25.731	225.8	0.052	3.62	157.6	57.9	18.6	1.50	18.1	0.10		0.43	0.34	20	02
30	10.36	10.36	33.813	25.964	203.8	0.073	2.23	97.1	35.3	28.6	2.00	23.5	0.45		0.16	0.63	30	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 88.5 30.1

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 39.0 N	118 5.1 W	10/04/2013	0310 UTC	29 m	260 15 kn			1013.2 mb	15.1 C	12.9 C				014

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.68	13.68	33.614	25.183	277.3	0.000	5.63	245.4	95.6	6.6	0.61	5.2	0.07	0.50	2.96	0.51	0	
1	13.68	13.68	33.614	25.183	277.3	0.003	5.63	245.4	95.6	6.6	0.61	5.2	0.07	0.50	2.96	0.51	1	04
5	13.66	13.66	33.614	25.187	277.1	0.014	5.64	245.8	95.7	6.5	0.60	5.2	0.07	0.49	3.04	0.52	5	03
10	13.46	13.46	33.622	25.235	272.7	0.028	5.30	231.1	89.6	8.3	0.73	7.1	0.08	0.55	3.49	0.58	10	02
20	10.74	10.73	33.702	25.813	218.0	0.052	2.60	113.4	41.5	24.1	1.86	23.6	0.18	1.43	0.83	0.75	20	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 90.0 27.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.4 N	117 45.3 W	10/04/2013	0034 UTC	39 m	330 13 kn	270 04 05	0	1013.2 mb	16.5 C	12.5 C		0/8		013

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.92	14.92	33.567	24.886	305.7	0.000	5.69	248.0	99.0	4.9	0.54	4.2	0.08	0.16	1.79	0.36	0	
2	14.92	14.92	33.567	24.886	305.7	0.006	5.69	248.0	99.0	4.9	0.54	4.2	0.08	0.16	1.79	0.36	2	05
5	14.78	14.77	33.566	24.916	302.9	0.015	5.77	251.4	100.1	4.4	0.50	3.6	0.08	0.26	2.24	0.39	5	04
10	14.75	14.75	33.568	24.923	302.4	0.030	5.77	251.2	100.0	4.2	0.49	3.4	0.10	0.31	3.23	0.44	10	03
20	11.36	11.36	33.613	25.632	235.2	0.057	3.55	154.5	57.3	15.9	1.45	18.0	0.10	0.14	0.92	0.49	20	02
30	10.94	10.93	33.659	25.745	224.7	0.080	3.16	137.8	50.7	19.9	1.67	20.1	0.08	0.20	0.63	0.56	30	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 90.0 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.0 N	117 46.0 W	09/04/2013	2253 UTC	59 m	340 09 kn	310 03 06	0	1012.9 mb	16.1 C	12.8 C	09 m	0/8		012

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.38	15.38	33.569	24.786	315.1	0.000	5.76	251.1	101.2	4.1	0.49	3.5	0.06	0.24	1.87	0.37	0	
2	15.38	15.38	33.569	24.786	315.2	0.006	5.76	251.1	101.2	4.1	0.49	3.5	0.06	0.24	1.87	0.37	2	09
5	14.81	14.81	33.561	24.905	304.0	0.016	5.74	250.2	99.7	4.2	0.48	3.4	0.06	0.16	1.88	0.26	5	08
10	14.29	14.29	33.563	25.018	293.4	0.031	5.73	249.5	98.4	4.6	0.51	3.7	0.08	0.15	2.58	0.09	10	07
20 ISL	11.76 D	11.75	33.610 D	25.557	242.3	0.058	3.67	D159.7 D	59.8	12.7	1.23	13.9	0.21	0.60	1.51	0.47	20	
21	11.56	11.55	33.623	25.604	237.9	0.060											21	06
21	11.56	11.55	33.608	25.593	239.0	0.060	3.53	D153.5 D	57.2	13.5	1.30	14.9	0.22	0.64	1.41	0.51	21	05
30	10.76	10.75	33.686	25.797	219.7	0.080	2.78	120.8	44.3	21.4	1.75	23.0	0.00	0.10	0.38	0.36	30	04
40	10.41	10.41	33.756	25.912	209.0	0.102	2.75	119.5	43.5	23.5	1.84	22.7	0.02	0.14	0.18	0.19	40	03
50	10.08	10.07	33.848	26.041	197.0	0.122	2.46	106.9	38.7	26.3	1.96	24.2	0.02	0.11	0.13	0.19	50	02
59	9.85	9.85	33.946	26.156	186.3	0.139	2.20	95.7	34.5	29.3	2.09	25.7	0.02	0.29	0.04	0.19	59	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 25.0 N	117 54.7 W	09/04/2013	1956 UTC	610 m	270 10 kn	260 04 08	0	1013.8 mb	16.7 C	12.4 C	09 m	0/8		011

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.22	14.22	33.566	25.033	291.6	0.000	6.23	271.6	106.9	2.0	0.34	1.3	0.03	0.11	5.70	0.21	0	
2 A	14.22	14.22	33.566	25.033	291.7	0.006	6.23	271.6	106.9	2.0	0.34	1.3	0.03	0.11	5.70	0.21	2	23
6 A	14.09	14.09	33.564	25.060	289.3	0.017	6.31	274.8	107.9	1.9	0.35	1.0	0.03	0.12	6.14	0.30	6	22
9 A	13.86	13.86	33.563	25.107	284.9	0.026	6.30	274.3	107.2	2.0	0.36	1.2	0.03	0.18	7.50	0.49	9	20
9	13.86	13.86	33.563	25.107	284.9	0.027											9	21
10 ISL	13.83 D	13.83	33.563 D	25.114	284.3	0.029	6.35	D276.4	D108.0	2.1	0.37	1.4	0.03	0.18	7.55	0.51	10	
15 A	13.72	13.72	33.566	25.138	282.1	0.043	6.03	262.7	102.4	2.6	0.41	2.2	0.04	0.17	7.78	0.59	15	19
20 ISL	13.50 D	13.49	33.593 D	25.205	275.8	0.057	5.71	D248.7 D	96.5	7.6	0.80	7.7	0.05	0.17	5.03	0.56	20	
26 A	11.74	11.73	33.588	25.544	243.7	0.073	4.09	177.9	66.5	13.6	1.26	14.4	0.06	0.17	1.74	0.52	26	18
30 ISL	11.35 D	11.35	33.606 D	25.628	235.8	0.083	3.68	D160.1 D	59.4	16.0	1.43	17.0	0.04	0.11	0.95	0.50	30	
31 A	11.28	11.28	33.609	25.643	234.4	0.085	3.60	156.6	58.0	16.6	1.47	17.7	0.04	0.09	0.75	0.50	31	17
40	10.94	10.93	33.651	25.738	225.6	0.105	3.28	142.8	52.5	19.1	1.63	19.9	0.00	0.11	0.43	0.31	40	16
50	10.69	10.68	33.699 D	25.820	218.0	0.129	3.00	130.4	47.7	21.2	1.74	21.4	0.00	0.07	0.29	0.33	50	15
60	10.34	10.33	33.782	25.946	206.3	0.149	2.60	113.1	41.1	24.3	1.90	23.4	0.00	0.06	0.20	0.46	60	14
70	10.11	10.10	33.856 D	26.044	197.2	0.170	2.44	106.1	38.4	26.0	1.98	24.4	0.00	0.11	0.10	0.23	71	13
75 ISL	10.05 D	10.04	33.882 D	26.074	194.5	0.180	2.43	D105.6 D	38.1	26.7	2.01	24.7	0.00	0.10	0.08	0.22	76	
85	9.95	9.94	33.923	26.123	190.1	0.198	2.27	98.8	35.6	28.3	2.06	25.2	0.00	0.07	0.06	0.19	86	12
100	9.74	9.73	33.979	26.202	182.8	0.226	2.11	91.9	33.0	30.1	2.12	26.1	0.00	0.08	0.04	0.15	101	11
120	9.49	9.48	34.071	26.316	172.4	0.262	1.90	82.6	29.5	33.2	2.22	27.5	0.00	0.12	0.03	0.11	121	10
125 ISL	9.45 D	9.43	34.086 D	26.335	170.7	0.272	1.87	D 81.3 D	29.0	33.8	2.24	27.7	0.00	0.11	0.03	0.12	126	
140	9.26	9.24	34.116	26.390	165.9	0.295	1.73	75.3	26.8	35.5	2.29	28.3	0.00	0.09	0.03	0.16	141	09
150 ISL	9.15 D	9.13	34.143 D	26.429	162.3	0.314	1.65	D 71.7 D	25.4	36.6	2.32	28.7	0.00	0.09	0.03	0.15	151	
170	9.04	9.02	34.187 D	26.481	157.8	0.346	1.53	66.4	23.5	38.9	2.38	29.5	0.00	0.08	0.03	0.13	171	08
200	8.67	8.65	34.204	26.554	151.4	0.391	1.28	55.6	19.5	42.7	2.50	30.7	0.00	0.08	0.01	0.05	202	07
230	8.48	8.45	34.233	26.607	146.9	0.435	1.08	47.0	16.4	45.8	2.59	31.6	0.00	0.08			232	06
250 ISL	8.25 D	8.23	34.229 D	26.639	144.2	0.467	1.05	D 45.8 D	15.9	47.9	2.63	32.3	0.00	0.08			252	
271	8.01	7.98	34.225	26.672	141.2	0.494	0.99	43.2	15.0	50.0	2.67	33.0	0.00	0.09			273	05
300 ISL	7.73 D	7.70	34.236 D	26.723	136.8	0.538	0.85	D 37.1 D	12.8	54.0	2.75	34.1	0.00	0.10			302	
320	7.51	7.48	34.237	26.755	134.0	0.562	0.73	31.9	10.9	56.7	2.81	34.9	0.00	0.11			323	04
380	7.15	7.11	34.261	26.826	128.0	0.640	0.58	25.1	8.5	61.8	2.91	36.3	0.00	0.22			383	03
400 ISL	7.02 D	6.98	34.268 D	26.850	126.1	0.670	0.52	D 22.8 D	7.7	64.0	2.95	36.7	0.00	0.19			403	
441	6.72	6.68	34.287	26.906	121.2	0.717	0.45	19.4	6.5	68.4	3.02	37.6	0.00	0.12			445	02
500 ISL	6.35 D	6.30	34.315 D	26.979	114.9	0.792	0.30	D 12.9 D	4.3	74.5	3.11	38.6	0.00	0.10			504	
517	6.31	6.27	34.317	26.985	114.4	0.806	0.26	11.3	3.8	76.2	3.13	38.9	0.00	0.09			521	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 14.9 N	118 15.5 W	09/04/2013	1501	UTC	392 m	300 10 kn	290 06 08	0	1013.0 mb	15.0 C	12.1 C	12 m	0/8		010

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.09	15.09	33.554	24.838	310.1	0.000	6.15	268.1	107.4	2.9	0.34	0.0	0.00	0.18	0.94	0.20	0	
3	15.09	15.09	33.554	24.839	310.2	0.009	6.15	268.1	107.4	2.9	0.34	0.0	0.00	0.18	0.94	0.20	3	20
10	15.09	15.08	33.551	24.838	310.6	0.031	6.11	266.0	106.6	2.9	0.34	0.0	0.00	0.13	0.94	0.22	10	18
10	15.09	15.08	33.550	24.838	310.6	0.032											10	19
20	15.08	15.08	33.551	24.839	310.8	0.062	6.11	266.0	106.6	2.9	0.34	0.0	0.00	0.13	0.93	0.21	20	17
30 ISL	15.04 D	15.04	33.551 D	24.849	310.2	0.094	6.12	D266.8	D106.8	2.9	0.34	0.0	0.00	0.14	0.95	0.21	30	
31	15.06	15.06	33.551	24.844	310.7	0.096	6.16	268.6	107.5	2.9	0.34	0.0	0.00	0.14	0.95	0.21	31	16
42	12.21	12.21	33.532	25.411	256.8	0.127	4.85	211.3	79.8	8.5	0.89	7.9	0.11	0.27	0.65	0.37	42	15
50	11.82	11.81	33.561	25.508	247.8	0.148	4.01	174.6	65.4	13.0	1.26	13.8	0.04	0.17	0.36	0.28	50	14
61	10.96	10.95	33.631	25.720	227.9	0.174	3.21	139.6	51.4	18.5	1.62	19.6	0.02	0.12	0.09	0.17	61	13
70	10.80	10.79	33.666	25.775	222.8	0.194	3.10	135.1	49.6	20.0	1.68	20.4	0.00	0.17	0.12	0.15	71	12
75 ISL	10.62 D	10.61	33.729 D	25.856	215.2	0.206	3.09	D134.4	D 49.1	21.3	1.74	21.2	0.00	0.17	0.09	0.13	76	
85	10.30	10.29	33.780	25.953	206.2	0.226	2.70	117.5	42.7	23.9	1.87	22.9	0.00	0.16	0.03	0.10	86	11
100 ISL	9.94 D	9.93	33.856 D	26.073	195.1	0.258	2.62	D113.9	D 41.1	26.2	1.95	24.1	0.00	0.22	0.01	0.07	101	
101	9.92	9.91	33.858	26.079	194.6	0.258	2.60	113.0	40.7	26.4	1.95	24.2	0.00	0.22	0.01	0.06	102	10
121	9.61	9.60	33.964	26.213	182.3	0.296	2.35	102.4	36.7	29.7	2.06	25.9	0.00	0.11	0.01	0.05	122	09
125 ISL	9.61 D	9.59	33.967 D	26.216	182.1	0.305	2.36	D102.8	D 36.8	30.1	2.08	26.1	0.00	0.12	0.01	0.05	126	
142	9.46	9.45	34.027	26.287	175.7	0.334	2.15	93.6	33.4	31.8	2.14	26.8	0.00	0.14	0.01	0.06	143	08
150 ISL	9.36 D	9.34	34.090 D	26.353	169.5	0.349	2.06	D 89.8	D 32.0	33.8	2.21	27.6	0.00	0.17	0.01	0.06	151	
171	8.92	8.90	34.153	26.473	158.5	0.382	1.58	68.8	24.3	39.0	2.38	29.6	0.00	0.24	0.01	0.05	172	07
200 ISL	8.77 D	8.75	34.208 D	26.540	152.7	0.429	1.30	D 56.6	D 19.9	42.1	2.49	30.4	0.00	0.22	0.01	0.05	202	
202	8.76	8.74	34.209	26.543	152.5	0.430	1.30	56.3	19.8	42.3	2.50	30.5	0.00	0.22	0.01	0.05	204	06
231	8.39	8.37	34.212	26.603	147.2	0.474	1.13	49.1	17.1	45.8	2.58	31.7	0.00	0.37			233	05
250 ISL	8.23 D	8.21	34.223 D	26.636	144.4	0.504	1.03	D 45.0	D 15.6	47.8	2.63	32.3	0.00	0.38			252	
270	8.06	8.03	34.222	26.662	142.2	0.530	0.95	41.5	14.4	50.0	2.68	33.0	0.00	0.40			272	04
300 ISL	7.78 D	7.75	34.233 D	26.713	137.8	0.576	0.86	D 37.4	D 12.9	54.9	2.78	34.3	0.00	0.29			302	
322	7.42	7.38	34.248	26.777	131.9	0.602	0.68	29.5	10.1	58.5	2.85	35.3	0.00	0.21			325	03
380	7.18	7.14	34.260	26.821	128.6	0.677	0.56	24.3	8.3	62.2	2.92	36.2	0.00	0.16			383	02
400 ISL	7.13 D	7.09	34.263 D	26.831	128.0	0.707	0.54	D 23.7	D 8.0	65.1	2.96	36.8	0.00	0.17			403	
434	6.72	6.68	34.286	26.905	121.1	0.745	0.38	16.3	5.5	69.9	3.04	37.8	0.00	0.19			438	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 10.8 N	118 23.2 W	08/04/2013	1241	UTC	1177 m	300 30 kn			1008.0 mb	15.0 C	13.5 C				009

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.46	15.46	33.561	24.762	317.4	0.000	6.03	263.0	106.1	2.8	0.33	0.1	0.00	0.04	0.41	0.11	0	
2	15.46	15.46	33.561	24.762	317.5	0.006	6.03	263.0	106.1	2.8	0.33	0.1	0.00	0.04	0.41	0.11	2	20
10	15.47	15.46	33.555	24.757	318.2	0.032	6.03	262.7	106.0	2.8	0.33	0.1	0.00	0.03	0.42	0.10	10	19
20	14.38	14.38	33.562 D	24.998	295.6	0.063	5.70	248.2	98.0	5.1	0.52	2.7	0.04	0.05	1.18	0.32	20	18
30 ISL	12.14 D	12.13	33.517 D	25.413	256.3	0.091	4.68	D203.8	D 76.8	10.5	1.01	10.2	0.05	0.06	0.63	0.35	30	
31	12.13	12.13	33.517	25.415	256.1	0.093	4.51	196.2	74.0	11.0	1.06	11.0	0.05	0.06	0.57	0.35	31	17
41	11.87	11.87	33.532	25.475	250.7	0.118	4.30	187.3	70.2	12.0	1.15	12.5	0.04	0.06	0.42	0.32	41	16
50	11.40	11.39	33.553	25.580	241.0	0.140	3.82	166.1	61.7	15.0	1.37	15.8	0.02	0.04	0.26	0.22	50	15
60	11.06	11.05	33.606	25.682	231.4	0.164	3.50	152.6	56.2	17.3	1.51	17.8	0.00	0.09	0.15	0.14	60	14
71	10.74	10.73	33.669	25.789	221.5	0.189	3.21	139.6	51.1	19.7	1.65	19.8	0.00	0.01	0.07	0.11	72	13
75 ISL	10.55 D	10.55	33.712 D	25.855	215.3	0.199	3.05	D132.7	D 48.4	20.6	1.68	20.4	0.00	0.01	0.06	0.10	76	
86	10.10	10.09	33.754	25.966	205.0	0.220	3.04	132.2	47.8	22.9	1.78	22.1	0.00	0.02	0.02	0.07	87	12
100 ISL	9.97 D	9.96	33.863 D	26.073	195.1	0.250	2.60	D113.1	D 40.8	25.5	1.91	23.6	0.00	0.07	0.02	0.08	101	
101	9.94	9.93	33.842	26.062	196.2	0.250	2.61	113.8	41.0	25.6	1.92	23.7	0.00	0.07	0.02	0.08	102	11
120	9.72	9.71	33.974	26.202	183.3	0.286	2.23	97.1	34.9	29.6	2.08	25.7	0.00	0.04	0.01	0.07	121	10
125 ISL	9.61 D	9.60	34.045 D	26.276	176.4	0.297	2.13	D 92.6	D 33.2	30.4	2.11	26.0	0.00	0.05	0.01	0.07	126	
141	9.48	9.46	34.081	26.327	171.9	0.323	1.96	85.2	30.4	32.9	2.19	27.1	0.00	0.08	0.01	0.06	142	09
150 ISL	9.27 D	9.25	34.084 D	26.363	168.6	0.341	1.87	D 81.3	D 28.9	34.3	2.23	27.6	0.00	0.08	0.01	0.05	151	
173	9.00	8.98	34.149	26.457	160.1	0.376	1.65	71.6	25.3	37.9	2.33	29.0	0.00	0.09	0.00	0.04	174	08
200	8.90	8.88	34.210	26.522	154.5	0.419	1.32	57.6	20.3	40.9	2.46	30.0	0.00	0.09	0.00	0.05	202	07
230	8.55	8.52	34.227	26.592	148.4	0.464	1.20	52.3	18.3	44.2	2.53	30.9	0.00	0.02			232	06
250 ISL	8.38 D	8.36	34.246 D	26.633	144.8	0.497	1.05	D 45.5	D 15.9	46.8	2.59	31.8	0.00	0.03			252	
269	8.08	8.05	34.230	26.665	142.0	0.521	1.01	43.8	15.2	49.2	2.64	32.6	0.00	0.04			271	05
300 ISL	7.71 D	7.68	34.235 D	26.724	136.7	0.568	0.89	D 38.5	D 13.2	53.2	2.72	33.7	0.00	0.04			302	
321	7.55	7.52	34.247	26.757	133.9	0.592	0.76	33.0	11.3	55.9	2.78	34.5	0.00	0.04			324	04
380	7.00	6.97	34.268	26.852	125.5	0.669	0.52	22.8	7.7	63.6	2.93	36.4	0.00	0.05			383	03
400 ISL	6.87 D	6.83	34.277 D	26.877	123.3	0.699	0.47	D 20.6	D 6.9	65.6	2.96	36.8	0.00	0.06			403	
440	6.65	6.61	34.291	26.919	119.9	0.742	0.40	17.3	5.8	69.4	3.02	37.7	0.00	0.07			444	02
500 ISL	6.33 D	6.28	34.316 D	26.982	114.5	0.819	0.29	D 12.5	D 4.2	74.7	3.08	38.7	0.00	0.07			504	
515	6.27	6.23	34.319	26.992	113.8	0.830	0.27	11.6	3.9	76.0	3.10	38.9	0.00	0.07			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 90.0 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 55.2 N	118 56.0 W	11/04/2013	0209 UTC	1711 m	280 11 kn	260 03 07	0	1017.1 mb	16.0 C	13.6 C		0/8		020

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.13	14.13	33.593	25.074	287.7	0.000	6.09	265.2	104.2						0.92	0.25	0	
1	14.13	14.13	33.593	25.074	287.8	0.003	6.09	265.2	104.2						0.92	0.25	1	21
10	13.70	13.70	33.590	25.160	279.8	0.028	6.17	268.6	104.7	3.9	0.47	2.6	0.08	0.05	0.98	0.28	10	20
20	12.91	12.91	33.615	25.340	263.1	0.056	5.84	254.2	97.4	7.5	0.69	5.8	0.11	0.12	1.76	0.55	20	18
20	12.91	12.91	33.610	25.336	263.4	0.056											20	19
30	12.56	12.55	33.609	25.404	257.2	0.082	5.54	241.4	91.9	7.9	0.78	6.9	0.15	0.25	1.42	0.49	30	17
40	11.20	11.20	33.624	25.670	232.1	0.106	4.39	191.2	70.7	15.5	1.26	14.2	0.24	0.34	0.33	0.31	40	16
50	10.67	10.67	33.634	25.773	222.6	0.129	4.01	174.6	63.8	18.2	1.41	16.9	0.25	0.16	0.15	0.28	50	15
59	10.19	10.18	33.664	25.879	212.6	0.148	3.58	155.6	56.3	21.4	1.59	19.8	0.10	0.04	0.06	0.24	59	14
70	9.62	9.61	33.740	26.035	198.0	0.171	3.14	136.9	48.9	25.3	1.78	22.9	0.09	0.09	0.02	0.19	71	13
75 ISL	9.58 D	9.57	33.756 D	26.054	196.3	0.182	3.07	D133.5 D	47.7	26.1	1.81	23.3	0.10	0.08	0.02	0.19	76	
85	9.40	9.39	33.799	26.117	190.5	0.200	2.89	125.7	44.7	27.7	1.86	24.2	0.11	0.05	0.02	0.20	86	12
100	9.28	9.27	33.845	26.172	185.6	0.228	2.69	116.9	41.5	29.4	1.94	25.3	0.09	0.02	0.02	0.18	101	11
120	9.08	9.07	33.935	26.276	176.1	0.265	2.30	99.9	35.4	32.8	2.09	27.2	0.03	0.26	0.02	0.17	121	10
125 ISL	9.05 D	9.04	33.951 D	26.293	174.6	0.275	2.26 D	98.3 D	34.8	33.6	2.12	27.6	0.03	0.21	0.02	0.16	126	
140	8.80	8.79	34.010	26.379	166.7	0.299	2.03	88.3	31.1	36.0	2.21	28.6	0.03	0.07	0.01	0.13	141	09
150 ISL	8.77 D	8.76	34.049 D	26.414	163.6	0.318	1.92 D	83.7 D	29.4	37.6	2.27	29.2	0.03	0.07	0.01	0.12	151	
170	8.56	8.54	34.099	26.488	156.9	0.347	1.56	67.7	23.7	40.9	2.38	30.4	0.04	0.07	0.01	0.11	171	08
200	8.31	8.29	34.152	26.568	149.8	0.393	1.21	52.7	18.4	45.0	2.51	31.7	0.06	0.09	0.01	0.10	202	07
230	8.12	8.10	34.188	26.625	145.0	0.438	1.03	44.6	15.5	48.3	2.59	32.7	0.04	0.10			232	06
250 ISL	7.95 D	7.92	34.209 D	26.669	141.1	0.470	0.94 D	41.1 D	14.2	50.5	2.64	33.2	0.02	0.08			252	
270	7.76	7.74	34.220	26.704	138.1	0.494	0.87	37.8	13.0	52.6	2.68	33.6	0.00	0.05			272	05
300 ISL	7.62 D	7.59	34.238 D	26.741	135.1	0.539	0.74 D	32.2 D	11.1	55.3	2.73	34.3	0.00	0.06			302	
320	7.46	7.42	34.240	26.765	133.0	0.562	0.70	30.5	10.4	57.1	2.77	34.7	0.00	0.07			323	04
380	6.99	6.96	34.284	26.866	124.2	0.639	0.44	19.0	6.4	65.0	2.97	36.5	0.00	0.09			383	03
400 ISL	6.83 D	6.79	34.285 D	26.889	122.2	0.669	0.42 D	18.4 D	6.2	66.9	2.99	36.9	0.00	0.08			403	
440	6.60	6.56	34.300	26.933	118.5	0.712	0.36	15.8	5.3	70.6	3.02	37.6	0.00	0.05			444	02
500 ISL	6.28 D	6.23	34.323 D	26.994	113.3	0.788	0.27 D	11.6 D	3.9								504	
515	6.19	6.14	34.328 D	27.010	111.9	0.805	0.28 D	12.1 D	4.0								519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 90.0 53.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 39.0 N	119 29.1 W	15/04/2013	0228 UTC	1322 m	300 14 kn	320 07 07	1	1011.9 mb	13.0 C	11.8 C		4/8	SC	034

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.76	12.76	33.592	25.350	261.5	0.000	5.91	257.6	98.4	5.3	0.77	6.3	0.16	0.34	1.31	0.43	0	
2	12.76	12.76	33.592	25.350	261.6	0.004											2	23
2	12.76	12.76	33.592	25.350	261.6	0.005	5.91	257.6	98.4	5.3	0.77	6.3	0.16	0.34	1.31	0.43	2	22
10	12.77	12.76	33.592	25.350	261.8	0.026	5.90	256.9	98.2	5.3	0.76	6.3	0.15	0.28	1.36	0.45	10	21
20	12.76	12.76	33.592	25.351	262.0	0.052	5.90	256.8	98.1	5.3	0.76	6.3	0.15	0.30	1.34	0.49	20	20
30	12.76	12.76	33.603	25.360	261.4	0.079	5.88	256.1	97.9	5.4	0.77	6.4	0.15	0.34	1.32	0.43	30	18
30	12.76	12.76	33.593	25.353	262.1	0.079											30	19
40	12.75	12.75	33.592	25.354	262.3	0.105	5.87	255.6	97.7	5.4	0.76	6.3	0.16	0.37	1.27	0.41	40	17
50	12.64	12.63	33.591	25.376	260.5	0.131	5.88	256.0	97.6	5.5	0.77	6.4	0.16	0.39	1.22	0.44	50	15
50	12.63	12.62	33.584	25.372	260.8	0.131											50	16
60	11.66	11.65	33.580	25.553	243.8	0.156	5.05	219.8	82.1	10.0	1.05	10.4	0.20	0.79	0.23	0.24	60	14
71	10.61	10.60	33.607	25.764	223.9	0.182	4.13	179.6	65.6	16.9	1.39	16.9	0.13	0.07	0.16	0.22	72	13
75 ISL	10.46 D	10.45	33.707 D	25.867	214.1	0.192	3.87	D168.4 D	61.3	18.5	1.47	18.1	0.12	0.06	0.16	0.23	76	
85	10.19	10.18	33.740	25.940	207.5	0.212	3.39	147.4	53.4	22.6	1.67	21.0	0.09	0.04	0.18	0.28	86	12
100	9.51	9.50	33.805	26.104	192.1	0.242	2.85	124.0	44.3	26.8	1.88	24.3	0.04	0.03	0.06	0.24	101	11
120	9.17	9.15	33.896	26.231	180.4	0.279	2.46	107.0	37.9	30.7	2.04	26.8	0.03	0.06	0.03	0.20	121	10
125 ISL	9.13 D	9.12	33.908 D	26.246	179.0	0.290	2.43	D105.9 D	37.5	31.2	2.06	27.0	0.03	0.07	0.02	0.20	126	
140	8.99	8.97	33.946	26.299	174.3	0.314	2.29	99.7	35.2	32.6	2.11	27.7	0.04	0.09	0.01	0.18	141	09
150 ISL	8.86 D	8.85	34.023 D	26.380	166.8	0.334	2.13 D	92.7 D	32.7	34.2	2.17	28.2	0.05	0.16	0.01	0.16	151	
171	8.80	8.78	34.088	26.442	161.4	0.366	1.77	76.9	27.1	37.4	2.30	29.3	0.08	0.32	0.01	0.13	172	08
200 ISL	8.38 D	8.36	34.125 D	26.535	153.0	0.415	1.53 D	66.4 D	23.1	41.9	2.41	31.0	0.07	0.18	0.01	0.11	202	
201	8.38	8.36	34.121	26.533	153.2	0.413	1.55	67.4	23.5	42.1	2.41	31.1	0.07	0.18	0.01	0.11	203	07
230	8.15	8.13	34.172	26.608	146.6	0.457	1.26	54.9	19.1	46.1	2.54	32.2	0.04	0.05			232	06
250 ISL	8.04 D	8.01	34.187 D	26.638	144.1	0.489	1.17 D	51.0 D	17.7	49.3	2.62	33.1	0.04	0.05			252	
270	7.71	7.68	34.210	26.704	138.0	0.514	0.95	41.5	14.2	52.4	2.69	34.0	0.03	0.04			272	05
300 ISL	7.53 D	7.50	34.235 D	26.750	134.1	0.559	0.79 D	34.5 D	11.8	56.5	2.80	35.0	0.01	0.06			302	
320	7.38	7.35	34.258	26.790	130.6	0.581	0.57	24.9	8.5	59.3	2.87	35.7	0.00	0.07			323	04
380	6.90	6.87	34.278	26.874	123.4	0.657	0.45	19.6	6.6	66.1	2.97	37.0	0.00	0.07			383	03
400 ISL	6.88 D	6.84	34.288 D	26.885	122.6	0.687	0.41 D	17.7 D	6.0	67.8	3.00	37.3	0.01	0.07			403	
440	6.64	6.60	34.306	26.931	118.7	0.730	0.31	13.4	4.5	71.2	3.06	37.9	0.02	0.08			444	02
500 ISL	6.30 D	6.25	34.324 D	26.992	113.5	0.806	0.28 D	12.1 D	4.0	74.4	3.09	38.5	0.02	0.17			504	
515	6.15	6.11	34.317	27.005	112.4	0.817	0.27	11.7	3.9	75.2	3.10	38.6	0.02	0.19			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 90.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 25.2 N	119 57.9 W	14/04/2013	2107	UTC	814 m	320 19 kn	320 07 07	2	1012.9 mb	13.0 C	11.3 C	13 m	8/8	ST	033

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.09	13.09	33.500	25.215	274.4	0.000	6.00	261.2	100.4	4.8	0.62	3.8	0.18	0.28	0.78	0.32	0	
2	13.09	13.09	33.500	25.215	274.4	0.006	6.00	261.2	100.4	4.8	0.62	3.8	0.18	0.28	0.78	0.32	2	20
10	13.09	13.08	33.509	25.222	274.0	0.027	5.99	261.1	100.4	4.8	0.60	3.7	0.17	0.24	0.74	0.31	10	19
20	13.08	13.08	33.510	25.224	274.0	0.055	5.99	261.0	100.3	4.8	0.60	3.7	0.17	0.24	0.72	0.32	20	18
29	13.07	13.07	33.501	25.220	274.7	0.080	5.99	260.9	100.3	4.8	0.61	3.7	0.18	0.28	0.69	0.32	29	17
30 ISL	13.07 D	13.06	33.500 D	25.220	274.8	0.083	6.01	D261.9	D100.7	4.8	0.61	3.7	0.18	0.28	0.69	0.32	30	
39	13.05	13.05	33.502	25.225	274.6	0.107	5.98	260.4	100.0	4.8	0.61	3.7	0.18	0.32	0.65	0.33	39	16
50	13.04	13.03	33.500	25.227	274.7	0.137	5.96	259.6	99.7	4.8	0.62	3.8	0.18	0.31	0.59	0.31	50	15
59	12.36	12.35	33.422 D	25.299	268.0	0.163	5.92	257.8	97.6	4.8	0.62	3.8	0.19	0.37	0.53	0.30	59	14
69	11.34	11.33	33.418	25.487	250.3	0.187	5.31	231.2	85.6	8.7	0.92	8.8	0.27	0.13	0.17	0.18	70	13
75 ISL	11.24 D	11.23	33.424 D	25.509	248.3	0.204	5.00	D217.8	D 80.5	10.9	1.05	11.3	0.18	0.10	0.13	0.14	76	
85	10.21	10.20	33.480	25.733	227.1	0.226	4.40	191.7	69.3	14.5	1.27	15.4	0.04	0.05	0.07	0.08	86	12
99	9.93	9.92	33.583	25.862	215.1	0.257	3.88	169.0	60.8	18.4	1.50	18.9	0.03	0.05	0.04	0.06	100	11
100 ISL	9.92 D	9.91	33.586 D	25.865	214.8	0.261	3.87	D168.6	D 60.6	18.7	1.51	19.1	0.03	0.05	0.04	0.06	101	
120	9.49	9.47	33.716	26.039	198.7	0.300	3.35	145.9	52.0	23.4	1.73	22.5	0.03	0.09	0.02	0.05	121	10
125 ISL	9.33 D	9.32	33.784 D	26.117	191.3	0.313	3.14	D136.5	D 48.5	25.1	1.80	23.5	0.03	0.09	0.01	0.05	126	
138	9.01	8.99	33.881	26.246	179.3	0.334	2.80	121.7	43.0	29.6	1.97	26.1	0.03	0.08	0.01	0.04	139	08
150 ISL	8.85 D	8.84	33.912 D	26.294	174.9	0.358	2.71	D118.1	D 41.6	31.2	2.02	26.8	0.03	0.10	0.01	0.04	151	
170	8.59	8.58	33.978	26.387	166.5	0.390	2.48	108.0	37.8	34.0	2.10	27.9	0.03	0.12	0.00	0.03	171	07
200	8.29	8.26	34.053	26.494	156.9	0.438	2.00	87.2	30.3	39.5	2.29	30.1	0.03	0.13	0.01	0.06	202	09
231	8.10	8.08	34.101	26.559	151.2	0.486	1.66	72.0	25.0	43.9	2.42	31.5	0.02	0.03			233	06
250 ISL	7.86 D	7.84	34.128 D	26.617	146.0	0.518	1.45	D 63.1	D 21.7	47.0	2.51	32.5	0.02	0.04			252	
273	7.64	7.61	34.155	26.671	141.2	0.547	1.20	52.0	17.8	50.8	2.61	33.6	0.02	0.05			275	05
300 ISL	7.41 D	7.38	34.178 D	26.722	136.7	0.589	1.01	D 43.9	D 15.0	53.7	2.68	34.4	0.02	0.07			302	
323	7.33	7.29	34.186	26.742	135.2	0.616	0.93	40.6	13.8	56.1	2.74	35.0	0.02	0.08			326	04
382	6.97	6.93	34.222	26.820	128.5	0.694	0.71	31.0	10.5	61.1	2.85	36.2	0.03	0.10			385	03
400 ISL	6.94 D	6.90	34.260 D	26.855	125.5	0.722	0.53	D 23.2	D 7.8	64.1	2.90	36.8	0.03	0.09			403	
442	6.44	6.40	34.262	26.923	119.2	0.768	0.43	18.5	6.2	71.1	3.02	38.3	0.02	0.07			446	02
500 ISL	6.10 D	6.06	34.298 D	26.996	112.9	0.842	0.33	D 14.1	D 4.7	77.3	3.09	39.4	0.03	0.15			504	
513	6.02	5.98	34.294	27.003	112.3	0.850	0.32	13.8	4.6	78.7	3.11	39.7	0.03	0.17			517	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 90.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 5.4 N	120 39.0 W	14/04/2013	1330	UTC	3836 m	330 23 kn			1013.1 mb	13.6 C	11.5 C				032

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.49	13.49	33.410	25.063	288.8	0.000	6.10	265.6	102.9	3.6	0.42	1.2	0.06	0.14	0.71	0.22	0	
2	13.49	13.49	33.410	25.063	288.8	0.006	6.10	265.6	102.9	3.6	0.42	1.2	0.06	0.14	0.71	0.22	2	20
10	13.50	13.50	33.406	25.060	289.4	0.029	6.05	263.5	102.1	3.6	0.42	1.2	0.06	0.11	0.66	0.21	10	19
20	13.50	13.50	33.405	25.060	289.7	0.058	6.05	263.7	102.2	3.6	0.42	1.2	0.07	0.13	0.71	0.21	20	18
30	13.49	13.49	33.406	25.062	289.8	0.087	6.06	264.1	102.3	3.6	0.42	1.3	0.08	0.11	0.69	0.21	30	17
40	13.48	13.47	33.407	25.066	289.7	0.116	6.05	263.4	102.0	3.6	0.43	1.3	0.07	0.15	0.66	0.23	40	16
50	13.10	13.10	33.407	25.142	282.8	0.145	5.99	260.9	100.3	3.9	0.51	2.1	0.11	0.40	0.51	0.23	50	15
60	12.00	12.00	33.421 D	25.366	261.6	0.173	5.81	252.9	95.0	5.0	0.65	4.3	0.21	0.51	0.34	0.19	60	14
71	11.18	11.17	33.399 D	25.500	249.0	0.201	5.47	238.1	87.9	7.6	0.88	8.0	0.32	0.24	0.17	0.16	72	13
75 ISL	10.87 D	10.86	33.358 D	25.524	246.8	0.211	4.98	D216.7	D 79.4	8.7	0.94	9.3	0.23	0.19	0.15	0.14	76	
86	10.57	10.56	33.386	25.598	240.0	0.237	4.70	204.4	74.5	11.6	1.12	12.9	0.00	0.06	0.11	0.08	87	12
100 ISL	10.08 D	10.07	33.540 D	25.803	220.7	0.270	4.03	D175.2	D 63.2	16.7	1.42	17.7	0.00	0.04	0.03	0.07	101	
101	10.05	10.04	33.530	25.800	221.1	0.271	4.02	174.9	63.0	17.0	1.44	18.0	0.00	0.04	0.02	0.07	102	11
120	9.59	9.58	33.664	25.981	204.2	0.311	3.51	152.7	54.6	22.1	1.69	21.9	0.00	0.09	0.05	0.06	121	10
125 ISL	9.47 D	9.45	33.702 D	26.032	199.5	0.323	3.39	D147.5	D 52.6	23.6	1.75	22.8	0.00	0.11	0.04	0.06	126	
140	9.08	9.06	33.830	26.194	184.3	0.350	2.91	126.7	44.8	28.1	1.94	25.6	0.00	0.16	0.01	0.06	141	09
150 ISL	8.95 D	8.93	33.886 D	26.259	178.3	0.371	2.71	D117.8	D 41.6	29.8	2.00	26.4	0.00	0.13	0.01	0.06	151	
170	8.77	8.75	33.964	26.349	170.2	0.403	2.42	105.5	37.1	33.2	2.11	27.9	0.00	0.06	0.01	0.06	171	08
200 ISL	7.95 D	7.93	33.985 D	26.490	157.0	0.455	2.80	D121.7	D 42.0	37.1	2.06	28.2	0.00	0.10	0.00	0.04	202	
201	7.93	7.91	33.982	26.491	157.0	0.454	2.78	121.1	41.8	37.2	2.06	28.2	0.00	0.10	0.00	0.03	203	07
230	7.53	7.51	33.998	26.561	150.7	0.499	2.49	108.3	37.0	42.7	2.20	30.2	0.00	0.03			232	06
250 ISL	7.27 D	7.24	34.026 D	26.621	145.2	0.532	2.06	D 89.6	D 30.4	46.7	2.34	31.9	0.00	0.05			252	
270	7.17	7.15	34.055	26.658	142.0	0.557	1.71	74.3	25.2	50.6	2.48	33.5	0.00	0.07			272	05
300 ISL	7.11 D	7.08	34.099 D	26.701	138.4	0.603	1.36	D 59.2	D 20.0	54.5	2.62	34.8	0.00	0.08			302	
321	7.06	7.03	34.138	26.739	135.1	0.628	1.06	46.1	15.6	57.1	2.71	35.7	0.00	0.08			324	04
380	6.73	6.69	34.190	26.828	127.5	0.705	0.74	32.0	10.8	64.1	2.87	37.2	0.00	0.06			383	03
400 ISL	6.54 D	6.50	34.209 D	26.868	123.9	0.735	0.64	D 27.8	D 9.3	66.4	2.92	37.7	0.00	0.06			403	
441	6.42	6.38	34.254	26.919	119.6	0.780	0.45	19.5	6.5	71.1	3.01	38.6	0.00	0.07			445	02
500 ISL	5.96 D	5.91	34.260 D	26.984	113.8	0.855	0.38	D 16.7	D 5.5	76.6	3.09	39.6	0.00	0.10			504	
515	6.02	5.97	34.294	27.004	112.3	0.866	0.31	13.6	4.5	78.0	3.11	39.8	0.00	0.11			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 90.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 45.1 N	121 19.4 W	14/04/2013	0655	UTC	3763 m	320 20 kn			1015.5 mb	13.3 C	12.0 C				031

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.33	14.33	33.276	24.786	315.1	0.000	5.93	258.3	101.7	2.9	0.30	0.1	0.00	0.05	0.14	0.03	0	
3	14.33	14.33	33.276	24.787	315.2	0.010	5.93	258.3	101.7	2.9	0.30	0.1	0.00	0.05	0.14	0.03	3	20
10	14.34	14.33	33.268	24.780	316.1	0.032	5.94	258.9	101.9	2.9	0.30	0.0	0.00	0.00	0.14	0.04	10	19
20	14.33	14.33	33.262	24.777	316.6	0.063	5.93	258.3	101.7	2.9	0.30	0.0	0.00	0.02	0.14	0.04	20	18
30	14.32	14.31	33.262	24.781	316.6	0.095	5.91	257.7	101.4	2.9	0.30	0.0	0.00	0.04	0.14	0.03	30	17
40	13.59	13.59	33.208 D	24.889	306.5	0.127	6.02	262.3	101.7	2.9	0.30	0.0	0.00	0.07	0.19	0.06	40	16
50	13.15	13.15	33.197	24.969	299.2	0.156	6.01	261.7	100.6	3.2	0.35	0.1	0.06	0.07	0.58	0.23	50	15
61	12.85	12.84	33.146	24.990	297.4	0.189	6.02	262.3	100.1	3.2	0.36	0.3	0.08	0.16	0.52	0.25	61	14
70	12.56	12.55	33.139	25.042	292.8	0.216	6.00	261.3	99.1	3.5	0.40	0.6	0.16	0.30	0.41	0.20	71	13
75 ISL	12.20 D	12.19	33.130 D	25.104	287.0	0.232	5.97	D260.0 D	97.9	4.0	0.45	1.5	0.19	0.20	0.32	0.17	76	
85	11.93	11.92	33.156	25.175	280.4	0.259	5.79	252.2	94.4	5.0	0.56	3.4	0.26	0.00	0.15	0.11	86	12
100	11.31	11.29	33.241	25.356	263.5	0.300	5.43	236.5	87.4	7.3	0.76	7.1	0.03	0.04	0.07	0.06	101	11
120	10.38	10.37	33.364	25.615	239.1	0.350	4.77	207.6	75.3	11.7	1.09	12.7	0.03	0.06	0.03	0.04	121	10
125 ISL	10.10 D	10.09	33.513 D	25.779	223.6	0.364	4.48	D195.1 D	70.4	13.6	1.19	14.4	0.03	0.06	0.02	0.03	126	
140	9.66	9.64	33.625	25.941	208.4	0.394	3.96	172.2	61.6	19.3	1.49	19.4	0.03	0.05	0.01	0.03	141	09
150 ISL	9.44 D	9.43	33.688 D	26.025	200.6	0.417	3.96	D172.2 D	61.3	21.1	1.56	20.5	0.03	0.05	0.01	0.02	151	
170	9.10	9.08	33.789	26.161	188.1	0.453	3.54	154.1	54.5	24.7	1.70	22.8	0.02	0.05	0.00	0.02	171	08
200 ISL	8.70 D	8.67	33.898 D	26.310	174.4	0.511	3.29	D143.2 D	50.2	28.6	1.80	24.5	0.02	0.08	0.00	0.02	202	
201	8.68	8.66	33.899	26.313	174.2	0.509	3.34	145.5	51.0	28.7	1.80	24.6	0.02	0.08	0.00	0.02	203	07
231	8.18	8.16	33.975	26.450	161.6	0.560	2.97	129.0	44.7	34.8	1.98	27.1	0.00	0.01			233	06
250 ISL	7.83 D	7.81	34.002 D	26.522	154.9	0.594	2.54	D110.3 D	38.0	39.7	2.16	29.3	0.00	0.02			252	
270	7.69	7.67	34.054	26.584	149.4	0.620	1.95	85.0	29.2	44.9	2.35	31.6	0.00	0.04			272	05
300 ISL	7.58 D	7.55	34.107 D	26.643	144.3	0.669	1.47	D 64.0 D	21.9	49.0	2.46	33.0	0.00	0.03			302	
320	7.25	7.21	34.084	26.672	141.6	0.693	1.50	65.3	22.2	51.8	2.54	34.0	0.00	0.03			323	04
380	6.87	6.83	34.184	26.804	129.9	0.774	0.79	34.5	11.6	62.0	2.83	36.8	0.00	0.06			383	03
400 ISL	6.70 D	6.66	34.197 D	26.837	126.9	0.806	0.72	D 31.4 D	10.5	64.4	2.88	37.3	0.01	0.06			403	
440	6.51	6.47	34.238	26.895	121.9	0.850	0.52	22.5	7.5	69.2	2.97	38.2	0.02	0.06			444	02
500 ISL	6.00 D	5.96	34.275 D	26.991	113.2	0.927	0.35	D 15.2 D	5.0	78.7	3.08	40.0	0.02	0.09			504	
515	5.82	5.78	34.281	27.017	110.7	0.937	0.42	18.1	5.9	81.0	3.11	40.4	0.02	0.10			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 90.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 24.9 N	121 59.9 W	14/04/2013	0040	UTC	3860 m	330 19 kn	330 06 08	1	1014.9 mb	14.5 C	12.8 C		7/8	SC	030

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.70	14.70	33.300	24.726	320.9	0.000	5.92	258.2	102.5	2.8	0.29	0.0	0.00	0.03	0.12	0.02	0	
2	14.70	14.70	33.299	24.726	320.9	0.005											2	23
2	14.70	14.70	33.300	24.726	320.9	0.006	5.92	258.2	102.5	2.8	0.29	0.0	0.00	0.03	0.12	0.02	2	22
10	14.71	14.70	33.300	24.726	321.2	0.032	5.89	256.8	101.9	2.8	0.29	0.0	0.00	0.05	0.12	0.02	10	21
20 ISL	14.69 D	14.69	33.297 D	24.727	321.4	0.065	5.93	D258.3 D	102.5	2.8	0.29	0.0	0.00	0.05	0.12	0.03	20	
24	14.65	14.65	33.291	24.731	321.1	0.077	5.91	257.6	102.1	2.8	0.29	0.0	0.00	0.05	0.12	0.03	24	20
30 ISL	14.63 D	14.62	33.286 D	24.734	321.1	0.097	5.94	D258.8 D	102.5	2.8	0.29	0.0	0.00	0.07	0.13	0.03	30	
40	14.46	14.45	33.261	24.751	319.8	0.128	5.93	258.4	102.0	2.8	0.29	0.0	0.00	0.10	0.15	0.03	40	19
50	13.31	13.31	33.207	24.906	305.2	0.160	6.08	264.9	102.1	2.8	0.31	0.0	0.00	0.09	0.24	0.07	50	17
50	13.31	13.31	33.208	24.946	301.4	0.161											50	18
62	13.08	13.07	33.117	24.924	303.9	0.196	6.21	270.5	103.7	2.7	0.31	0.0	0.00	0.08	0.38	0.11	62	16
75	12.94	12.93	33.144	24.973	299.5	0.235	6.16	268.3	102.6	2.8	0.32	0.0	0.00	0.14	0.55	0.22	76	15
87	12.77	12.75	33.126	24.992	298.0	0.271	6.07	264.6	100.8	3.0	0.35	0.1	0.02	0.28	0.37	0.19	88	14
100	12.62	12.61	33.124	25.019	295.8	0.310	6.04	263.0	99.9	3.3	0.38	0.4	0.07	0.40	0.27	0.16	101	12
100	12.62	12.61	33.123	25.019	295.8	0.311											101	13
113	12.45	12.43	33.158	25.080	290.3	0.348	5.83	254.2	96.2	4.0	0.46	1.8	0.17	0.23	0.20	0.15	114	11
125	11.49	11.47	33.193	25.287	270.8	0.381	5.56	242.0	89.8	6.3	0.67	5.6	0.02	0.08	0.07	0.07	126	10
140	10.86	10.84	33.388 D	25.551	245.8	0.423	5.00	217.7	79.8	9.3	0.91	9.9	0.00	0.08	0.06	0.07	141	09
150 ISL	10.30 D	10.28	33.476 D	25.717	230.2	0.447	4.84	D210.9 D	76.4	12.5	1.10	12.9	0.00	0.10	0.04	0.05	151	
170	9.69	9.67	33.624	25.936	209.7	0.488	3.98	173.3	62.0	19.0	1.47	19.0	0.00	0.13	0.01	0.02	171	08
200	8.95	8.93	33.838	26.222	182.9	0.547	3.43	149.3	52.6	25.9	1.72	23.2	0.00	0.15	0.00	0.02	202	07
231	8.63	8.61	33.961	26.370	169.3	0.601	2.74	119.3	41.8	32.2	1.98	26.7	0.00	0.07			233	06
250 ISL	8.55 D	8.52	34.031 D	26.439	163.2	0.638	2.21	D 96.0 D	33.6	36.0	2.12	28.4	0.00	0.07			252	
270	8.24	8.21	34.063	26.511	156.7	0.665	1.94	84.5	29.4	40.1	2.27	30.1	0.00	0.06			272	05
300 ISL	7.88 D	7.85	34.100 D	26.594	149.1	0.716	1.65	D 72.0 D	24.8	45.6	2.43	31.9	0.00	0.05			302	
320	7.57	7.53	34.121	26.656	143.4	0.740	1.38	60.2	20.6	49.3	2.53	33.1	0.00	0.05			323	04
380	7.03	7.00	34.179	26.778	132.5	0.823	0.87	37.8	12.8	58.7	2.76	35.8	0.00	0.07			383	03
400 ISL	6.88 D	6.84	34.202 D	26.817	129.0	0.856	0.72	D 31.2 D	10.5	61.6	2.82	36.4	0.00	0.09			403	
442	6.52	6.48	34.228	26.886	122.8	0.902	0.55	24.1	8.1	67.7	2.94	37.6	0.00	0.12			446	02
500 ISL	6.27 D	6.23	34.280 D	26.960	116.5	0.979	0.39	D 17.1 D	5.7	73.5	3.03	38.6	0.00	0.15			504	
515	6.20	6.16	34.284	26.973	115.4	0.989	0.35	15.0	5.0	75.0	3.05	38.9	0.00	0.16			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 5.0 N	122 40.8 W	13/04/2013	1729	UTC	3987 m	350 18 kn	350 05 07	1	1016.7 mb	14.4 C	12.6 C	21 m	6/8	SC	029

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.32	15.32	33.411	24.677	325.5	0.000	5.81	253.1	101.8	2.9	0.30	0.0	0.00	0.26	0.12	0.03	0	
3 A	15.32	15.32	33.411	24.678	325.6	0.010	5.81	253.1	101.8	2.9	0.30	0.0	0.00	0.26	0.12	0.03	3	22
10 ISL	15.32 D	15.32	33.409 D	24.677	325.9	0.033	5.84	D254.6	D102.4	2.9	0.29	0.0	0.00	0.12	0.12	0.03	10	
13 A	15.33	15.32	33.410	24.677	326.0	0.042	5.80	252.8	101.7	2.9	0.29	0.0	0.00	0.06	0.12	0.03	13	21
18 A	15.33	15.33	33.410	24.676	326.3	0.059	5.81	253.2	101.8	2.9	0.28	0.0	0.00	0.06	0.14	0.01	18	20
20 ISL	15.33 D	15.33	33.409 D	24.676	326.3	0.066	5.83	D254.0	D102.1	2.9	0.28	0.0	0.00	0.06	0.14	0.02	20	
30 ISL	15.33 D	15.32	33.409 D	24.677	326.5	0.099	5.83	D254.0	D102.1	2.9	0.28	0.0	0.00	0.07	0.13	0.02	30	
32 A	15.31	15.31	33.410	24.681	326.2	0.104	5.81	253.2	101.8	2.9	0.28	0.0	0.00	0.07	0.13	0.02	32	19
42	15.26	15.25	33.410	24.694	325.3	0.137	5.82	253.7	101.9	2.9	0.28	0.0	0.00	0.08	0.15	0.02	42	18
50	14.59	14.59	33.377	24.812	314.3	0.163	5.96	259.6	102.8	3.0	0.29	0.0	0.00	0.08	0.28	0.03	50	17
59 A	13.86	13.85	33.356	24.950	301.4	0.190	6.07	264.5	103.2	3.2	0.31	0.0	0.00	0.08	0.38	0.12	59	16
69 A	13.35	13.34	33.336	25.039	293.2	0.220	5.80	252.6	97.5	3.9	0.43	1.5	0.06	0.08	0.65	0.43	70	15
75 ISL	13.08 D	13.07	33.334 D	25.092	288.3	0.239	5.69	D247.8	D 95.1	4.3	0.48	2.4	0.08	0.10	0.52	0.41	76	
77	12.96	12.95	33.339	25.120	285.6	0.243	5.66	246.6	94.4	4.4	0.50	2.7	0.08	0.10	0.48	0.41	78	14
85	12.71	12.70	33.336	25.165	281.5	0.266	5.54	241.4	92.0	5.2	0.57	3.9	0.07	0.08	0.39	0.29	86	13
94	12.29	12.27	33.349	25.258	272.8	0.291	5.40	235.2	88.8	6.3	0.68	5.8	0.03	0.08	0.23	0.19	95	12
100 ISL	11.98 D	11.97	33.370 D	25.332	265.9	0.309	5.41	D235.8	D 88.5	7.5	0.78	7.3	0.03	0.09	0.17	0.15	101	
109	11.61	11.59	33.405	25.429	256.8	0.330	5.07	220.9	82.3	9.2	0.92	9.5	0.02	0.11	0.09	0.08	110	11
125 ISL	10.57 D	10.55	33.461 D	25.659	235.2	0.372	4.36	D189.9	D 69.2	13.3	1.21	14.4	0.02	0.09	0.06	0.06	126	
128	10.42	10.40	33.467	25.690	232.2	0.377	4.31	187.7	68.2	14.1	1.27	15.3	0.02	0.09	0.06	0.06	129	10
148	9.70	9.68	33.663	25.964	206.5	0.421	3.49	151.7	54.3	21.6	1.67	21.4	0.00	0.12	0.01	0.02	149	09
150 ISL	9.67 D	9.66	33.670 D	25.974	205.6	0.428	3.51	D152.7	D 54.6	22.0	1.68	21.6	0.00	0.12	0.01	0.02	151	
170	9.16	9.14	33.794	26.154	188.7	0.464	3.32	144.6	51.2	25.7	1.77	23.3	0.00	0.08	0.01	0.02	171	08
200 ISL	8.86 D	8.83	33.945 D	26.322	173.4	0.522	2.68	D116.5	D 41.0	31.5	2.01	26.3	0.00	0.09	0.00	0.02	202	
204	8.84	8.81	33.960	26.337	172.1	0.525	2.55	110.9	39.0	32.3	2.04	26.7	0.00	0.09	0.00	0.02	206	07
230	8.54	8.51	34.023	26.433	163.3	0.569	2.21	96.2	33.6	36.4	2.18	28.4	0.00	0.09			232	06
250 ISL	8.36 D	8.33	34.056 D	26.487	158.5	0.606	2.01	D 87.3	D 30.4	39.8	2.27	29.6	0.00	0.09			252	
273	7.97	7.94	34.081	26.565	151.4	0.637	1.77	76.8	26.5	43.6	2.38	31.0	0.00	0.09			275	05
300 ISL	7.75 D	7.72	34.144 D	26.646	144.1	0.682	1.32	D 57.3	D 19.7	48.9	2.54	32.6	0.00	0.11			302	
321	7.49	7.46	34.167	26.703	139.0	0.706	1.06	46.1	15.8	53.0	2.67	33.9	0.00	0.12			324	04
384	6.89	6.86	34.214	26.824	128.1	0.790	0.67	29.1	9.8	62.8	2.87	36.2	0.00	0.13			387	03
400 ISL	6.80 D	6.76	34.224 D	26.846	126.2	0.817	0.63	D 27.4	D 9.2	64.6	2.90	36.6	0.00	0.14			403	
442	6.48	6.44	34.231	26.894	122.0	0.863	0.52	22.8	7.6	69.3	2.99	37.6	0.00	0.18			446	02
500 ISL	6.07 D	6.02	34.275 D	26.983	114.1	0.939	0.36	D 15.4	D 5.1	77.3	3.07	39.0	0.00	0.10			504	
512	5.92	5.88	34.268	26.995	112.9	0.945	0.35	15.3	5.0	79.0	3.09	39.3	0.00	0.08			516	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 90.0 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
30 44.9 N	123 20.2 W	13/04/2013	1025	UTC	4042 m	350 17 kn			1016.2 mb	12.9 C	12.3 C				028

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.02	15.02	33.380	24.719	321.5	0.000	5.85	255.1	101.9	2.9	0.30	0.0	0.00	0.10	0.13	0.03	0	
2	15.02	15.02	33.380	24.719	321.6	0.006	5.85	255.1	101.9	2.9	0.30	0.0	0.00	0.10	0.13	0.03	2	20
10	15.02	15.02	33.377	24.717	322.0	0.032	5.86	255.2	102.0	2.9	0.29	0.0	0.00	0.08	0.13	0.03	10	19
20 ISL	15.03 D	15.02	33.379 D	24.719	322.2	0.065	5.86	D255.4	D102.1	2.9	0.30	0.0	0.00	0.07	0.13	0.03	20	
24	15.02	15.02	33.384	24.724	321.9	0.077	5.85	255.1	101.9	2.9	0.30	0.0	0.00	0.06	0.14	0.03	24	18
30 ISL	15.03 D	15.02	33.379 D	24.719	322.5	0.097	5.85	D255.0	D101.9	2.9	0.30	0.0	0.00	0.06	0.14	0.03	30	
40	15.03	15.02	33.378	24.719	322.8	0.129	5.85	254.7	101.8	2.9	0.30	0.0	0.00	0.07	0.14	0.03	40	17
50 ISL	15.02 D	15.01	33.379 D	24.722	323.0	0.162	5.86	D255.4	D102.1	2.9	0.30	0.0	0.00	0.09	0.13	0.03	50	
51	15.03	15.02	33.379	24.721	323.1	0.164	5.86	255.2	102.0	2.9	0.30	0.0	0.00	0.09	0.13	0.03	51	16
63	13.69	13.68	33.323	24.960	300.6	0.202	6.06	264.2	102.7	3.2	0.32	0.0	0.00	0.08	0.31	0.13	63	15
75	13.25	13.24	33.321	25.046	292.6	0.237	5.93	258.4	99.5	3.8	0.40	0.9	0.04	0.13	0.66	0.32	76	14
87	12.45	12.43	33.340	25.220	276.3	0.271	5.73	249.5	94.5	4.9	0.55	3.4	0.11	0.08	0.45	0.28	88	13
100	11.50	11.49	33.341	25.398	259.5	0.306	5.20	226.3	84.1	7.7	0.80	7.7	0.00	0.10	0.12	0.12	101	12
112	11.09	11.07	33.377	25.501	249.9	0.337	4.96	216.1	79.6	9.4	0.94	9.9	0.00	0.07	0.15	0.13	113	11
125 ISL	10.68 D	10.67	33.466 D	25.643	236.7	0.371	4.46	D194.1	D 70.9	13.5	1.23	14.5	0.00	0.08	0.08	0.07	126	
126	10.66	10.65	33.484	25.660	235.1	0.371	4.38	190.6	69.6	13.9	1.25	14.8	0.00	0.08	0.07	0.07	127	10
140	10.29	10.27	33.525	25.757	226.1	0.403	4.27	186.1	67.4	15.2	1.30	15.9	0.00	0.11	0.00	0.02	141	09
150 ISL	9.87 D	9.85	33.604 D	25.890	213.6	0.428	4.07	D177.2	D 63.7	18.0	1.44	18.0	0.00	0.09	0.00	0.02	151	
170	9.40	9.38	33.748	26.080	195.9	0.466	3.42	149.0	53.0	23.8	1.71	22.2	0.00	0.06	0.01	0.02	171	08
200 ISL	8.75 D	8.73	33.924 D	26.322	173.4	0.525	2.85	D123.8	D 43.5	30.8	1.96	25.9	0.00	0.09	0.00	0.02	202	
201	8.73	8.71	33.917	26.319	173.6	0.523	2.85	124.1	43.6	31.1	1.97	26.0	0.00	0.09	0.00	0.02	203	07
230	8.43	8.40	33.984	26.419	164.6	0.572	2.60	113.0	39.4	35.1	2.08	27.7	0.00	0.07			232	06
250 ISL	8.24 D	8.21	34.008 D	26.468	160.3	0.609	2.44	D106.1	D 36.9	38.2	2.16	28.8	0.00	0.06			252	
269	7.96	7.94	34.026	26.522	155.3	0.635	2.20	95.5	33.0	41.2	2.24	29.9	0.00	0.06			271	05
300 ISL	7.50 D	7.47	34.072 D	26.626	145.8	0.686	1.74	D 75.5	D 25.8	47.5	2.44	32.2	0.00	0.08			302	
326	7.22	7.19	34.104	26.691	139.9	0.718	1.34	58.2	19.8	52.9	2.60	34.1	0.00	0.09			329	04
381	6.79	6.75	34.135	26.776	132.4	0.793	1.03	44.7	15.0	61.1	2.76	36.2	0.00	0.10			384	03
400 ISL	6.52 D	6.48	34.149 D	26.823	128.1	0.824	0.88	D 38.1	D 12.7	63.8	2.81	36.8	0.00	0.11			403	
441	6.28	6.24	34.176	26.877	123.4	0.870	0.70	30.3	10.1	69.7	2.92	38.1	0.00	0.12			445	02
500 ISL	5.85 D	5.80	34.213 D	26.960	115.9	0.947	0.49	D 21.5	D 7.1	77.7	3.03	39.6	0.00	0.12			504	
514	5.76	5.71	34.218	26.976	114.5	0.956	0.45	19.7	6.5	79.5	3.06	40.0	0.00	0.12			518	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 93.3 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 57.3 N	117 18.5 W	07/04/2013	0147	UTC	74 m	260 03 kn	280 03 06	1	1015.9 mb	16.8 C	15.2 C		2/8	SC	001

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.71	14.71	33.570	24.934	301.1	0.000	6.05	263.6	104.8	8.9	0.63	5.2	0.10	0.27	3.62	0.69	0	
2	14.71	14.70	33.570	24.934	301.1	0.006	6.05	263.6	104.8	8.9	0.63	5.2	0.10	0.27	3.62	0.69	2	09
5	14.28	14.28	33.568	25.023	292.8	0.015	5.88	256.4	101.1	9.8	0.69	5.8	0.11	0.13	3.13	0.90	5	08
10	12.09	12.09	33.566	25.459	251.4	0.029	4.81	209.6	79.0	12.1	1.01	10.0	0.15	0.26	2.33	1.08	10	07
20	11.12	11.12	33.618	25.680	230.7	0.053	3.36	146.2	54.0	18.0	1.56	19.0	0.10	0.24	1.12	0.49	20	06
30	10.86	10.85	33.656	25.756	223.6	0.075	2.99	130.0	47.7	20.2	1.71	20.5	0.12	0.58	0.78	0.49	30	05
40	10.51	10.51	33.735	25.879	212.2	0.097	2.55	111.1	40.5	23.8	1.89	23.2	0.09	0.63	0.25	0.27	40	04
50	10.36	10.36	33.801	25.956	205.1	0.118	2.34	101.7	37.0	26.1	1.99	24.3	0.04	0.49	0.14	0.25	50	03
59	10.00	9.99	33.909	26.103	191.4	0.136	2.08	90.4	32.7	29.5	2.11	25.7	0.06	0.12	0.05	0.21	59	02
69	9.87	9.86	33.971 D	26.174	184.8	0.155	2.01 D	87.6 D	31.6								70	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 93.3 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 54.2 N	117 24.1 W	07/04/2013	0455	UTC	571 m	240 02 kn			1016.5 mb	16.3 C	14.4 C				003

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.64	15.64	33.570	24.729	320.6	0.000	6.39	278.3	112.7	1.7	0.27	0.1	0.00	0.09	1.03	0.17	0	
2	15.64	15.64	33.570	24.729	320.7	0.006	6.39	278.3	112.7	1.7	0.27	0.1	0.00	0.09	1.03	0.17	2	20
10	12.40	12.39	33.567	25.402	256.8	0.030	6.64	289.2	109.7	1.6	0.25	0.3	0.00	0.09	3.46	0.14	10	19
20	11.69	11.69	33.595	25.557	242.3	0.055	4.31	187.6	70.1	13.8	1.20	13.4	0.14	0.13	2.45	0.64	20	18
30	11.39	11.39	33.618	25.630	235.6	0.078	3.60	156.9	58.3	17.0	1.45	17.2	0.13	0.14	1.46	0.85	30	17
40	10.97	10.96	33.651	25.733	226.0	0.102	3.15	137.0	50.4	19.2	1.63	19.8	0.09	0.54	1.23	0.56	40	16
50	10.80	10.79	33.686	25.791	220.9	0.124	2.87	D125.0	D 45.8	21.1	1.76	21.5	0.04	0.22	0.93	0.27	50	15
60	10.64	10.64	33.720	25.845	216.0	0.146	2.69	117.2	42.9	22.6	1.82	22.5	0.04	0.27	0.67	0.27	60	14
70	10.28	10.28	33.768	25.945	206.6	0.167	2.39	100.8	37.8	25.2	1.97	24.7	0.19	1.39	0.15	0.19	71	13
75 ISL	10.21 D	10.21	33.815 D	25.993	202.1	0.178	2.28 D	99.3 D	36.0	26.1	2.00	25.0	0.18	1.36	0.11	0.15	76	
85	10.04	10.03	33.868	26.066	195.5	0.197	2.25	97.8	35.3	27.7	2.06	25.5	0.16	1.30	0.03	0.08	86	12
100	9.79	9.78	34.011	26.220	181.2	0.225	2.06	89.6	32.2	30.7	2.15	26.3	0.01	0.38	0.02	0.10	101	11
120	9.52	9.51	34.038	26.285	175.4	0.261	2.08	90.6	32.4	32.0	2.16	26.9	0.01	0.39	0.01	0.10	121	10
125 ISL	9.49 D	9.47	34.054 D	26.304	173.7	0.271	2.05 D	89.1 D	31.8	32.5	2.18	27.1	0.01	0.37	0.01	0.10	126	
140	9.32	9.31	34.097	26.365	168.2	0.295	1.94	84.4	30.1	34.1	2.22	27.7	0.01	0.30	0.02	0.09	141	09
150 ISL	9.35 D	9.33	34.159 D	26.409	164.3	0.314	1.64 D	71.4 D	25.5	35.7	2.28	28.3	0.02	0.34	0.01	0.08	151	
170	9.06	9.04	34.180	26.472	158.6	0.344	1.44	62.6	22.2	39.1	2.41	29.6	0.03	0.41	0.01	0.07	171	08
200 ISL	8.92 D	8.90	34.227 D	26.533	153.5	0.393	1.19 D	51.7 D	18.3	41.9	2.51	30.3	0.02	0.24	0.02	0.04	202	
201	8.92	8.90	34.227	26.533	153.5	0.392	1.19	51.7	18.3	42.0	2.51	30.3	0.02	0.23	0.02	0.04	203	07
230	8.66	8.63	34.249	26.592	148.4	0.436	1.05	45.6	16.0	44.7	2.58	31.1	0.00	0.13			232	06
250 ISL	8.47 D	8.44	34.247 D	26.620	146.1	0.469	1.01 D	44.0 D	15.4	47.0	2.63	31.8	0.00	0.10			252	
270	8.22	8.19	34.260	26.669	141.7	0.494	0.89	38.8	13.5	49.2	2.68	32.5	0.00	0.06			272	05
300 ISL	8.00 D	7.97	34.265 D	26.706	138.7	0.540	0.81 D	35.3 D	12.2	52.6	2.74	33.3	0.01	0.04			302	
321	7.77	7.74	34.260	26.736	136.0	0.565	0.74	32.3	11.1	55.0	2.78	33.8	0.02	0.02			324	04
380	7.14	7.10	34.260	26.827	128.0	0.643	0.57	24.8	8.4	62.3	2.90	36.2	0.00	0.05			383	03
400 ISL	6.96 D	6.92	34.273 D	26.862	124.9	0.673	0.49 D	21.5 D	7.3	65.0	2.95	36.8	0.00	0.06			403	
440	6.65	6.61	34.296	26.923	119.5	0.717	0.35	15.2	5.1	70.2	3.04	37.9	0.00	0.09			444	02
500 ISL	6.24 D	6.19	34.323 D	26.999	112.8	0.793	0.27 D	11.7 D	3.9	76.7	3.12	39.0	0.00	0.02			504	
515	6.16	6.12	34.326	27.011	111.8	0.804	0.24	10.6	3.5	78.4	3.14	39.3	0.00	0.00			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 93.3 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 50.3 N	117 32.0 W	07/04/2013	0724	UTC	861 m	330 02 kn			1016.0 mb	15.1 C	14.9 C				004

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.03	16.03	33.557	24.633	329.7	0.000	6.07	264.4	107.9	2.3	0.35	0.1	0.00		0.23	0.07	0	
3	16.03	16.03	33.557	24.633	329.8	0.010	6.07	264.4	107.9	2.3	0.35	0.1	0.00		0.23	0.07	3	20
10	15.86	15.86	33.554	24.669	326.6	0.033	6.13	267.0	108.6	2.2	0.32	0.0	0.00		0.24	0.05	10	19
20	14.65	14.64	33.561	24.941	301.0	0.064	6.46	281.5	111.8	2.0	0.29	0.0	0.00		0.33	0.13	20	18
30	12.55	12.54	33.544	25.356	261.8	0.092	5.42	236.2	89.8	7.8	0.76	6.3	0.12		1.02	0.62	30	17
41	11.59	11.58	33.563	25.552	243.3	0.120	3.86	167.9	62.6	13.6	1.32	15.3	0.07		0.49	0.31	41	16
50	11.16	11.15	33.606	25.664	232.9	0.142	3.69	160.5	59.3	16.5	1.46	17.7	0.07		0.34	0.22	50	15
60	10.64	10.63	33.695	25.827	217.7	0.164	2.84	123.8	45.2	21.4	1.76	21.7	0.06		0.24	0.23	60	14
70	10.28	10.27	33.777	25.953	205.9	0.185	2.71	118.0	42.8	23.4	1.85	22.5	0.00		0.06	0.14	71	13
75 ISL	10.25 D	10.24	33.827 D	25.998	201.7	0.196	2.62 D	114.1 D	41.4	24.4	1.89	23.1	0.00		0.05	0.13	76	
85	10.09	10.08	33.874	26.062	195.9	0.215	2.42	105.3	38.1	26.4	1.98	24.2	0.00		0.03	0.12	86	12
100 ISL	9.84 D	9.83	33.976 D	26.183	184.7	0.245	2.16 D	94.1 D	33.9	29.3	2.08	25.7	0.00		0.02	0.10	101	
101	9.83	9.81	33.975	26.186	184.5	0.246	2.13	92.8	33.4	29.5	2.09	25.8	0.00		0.02	0.10	102	11
120	9.60	9.59	34.054	26.285	175.4	0.280	1.98	86.1	30.9	31.7	2.16	26.6	0.00		0.01	0.07	121	10
125 ISL	9.58 D	9.56	34.074 D	26.304	173.7	0.290	1.99 D	86.5 D	31.0	32.4	2.19	26.9	0.00		0.01	0.07	126	
140	9.47	9.45	34.120	26.358	168.9	0.314	1.75	76.0	27.2	34.3	2.26	27.6	0.00		0.01	0.08	141	09
150 ISL	9.46 D	9.44	34.138 D	26.375	167.5	0.333	1.70 D	73.8 D	26.4	35.2	2.29	28.0	0.00		0.01	0.07	151	
171	9.21	9.19	34.171	26.441	161.6	0.366	1.55	67.3	23.9	37.2	2.35	28.7	0.00		0.01	0.06	172	08
200 ISL	8.95 D	8.93	34.208 D	26.513	155.4	0.414	1.34 D	58.4 D	20.6	40.3	2.45	29.8	0.00		0.01	0.06	202	
201	8.95	8.93	34.215	26.518	154.9	0.413	1.32	57.2	20.2	40.5	2.45	29.8	0.00		0.01	0.06	203	07
231	8.68	8.65	34.238	26.580	149.6	0.459	1.16	50.4	17.7	43.4	2.52	30.7	0.00				233	06
250 ISL	8.47 D	8.44	34.233 D	26.610	147.1	0.491	1.11 D	48.1 D	16.8	45.4	2.56	31.4	0.00				252	
269	8.28	8.25	34.233	26.639	144.6	0.515	1.04	45.1	15.7	47.4	2.60	32.0	0.00				271	05
300 ISL	8.01 D	7.98	34.235 D	26.680	141.1	0.563	0.95 D	41.5 D	14.4	50.0	2.66	32.7	0.00				302	
320	7.89	7.86	34.240	26.703	139.2	0.587	0.88	38.5	13.3	51.7	2.70	33.2	0.00				323	04
380	7.20	7.16	34.263	26.821	128.6	0.668	0.60	26.1	8.9	60.5	2.86	35.6	0.00				383	03
400 ISL	7.04 D	7.00	34.268 D	26.848	126.3	0.699	0.55 D	23.7 D	8.0	63.2	2.90	36.2	0.00				403	
442	6.71	6.67	34.292	26.911	120.7	0.745	0.38	16.4	5.5	68.8	2.99	37.5	0.00				446	02
500 ISL	6.28 D	6.24	34.320 D	26.991	113.6	0.820	0.28 D	12.1 D	4.0	75.8	3.08	38.6	0.00				504	
516	6.20	6.15	34.326	27.006	112.3	0.831	0.24	10.4	3.5	77.8	3.11	38.9	0.00				520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.3 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 40.7 N	117 52.6 W	07/04/2013	1115	UTC	614 m	330 28 kn			1013.8 mb	16.0 C	15.1 C				005

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.98	15.98	33.576	24.658	327.3	0.000	6.05	263.6	107.5	2.3	0.29	0.0	0.00		0.29	0.08	0	
3	15.98	15.98	33.576	24.658	327.4	0.010	6.05	263.6	107.5	2.3	0.29	0.0	0.00		0.29	0.08	3	20
10	15.98	15.98	33.583	24.664	327.2	0.033	6.05	263.8	107.6	2.3	0.30	0.0	0.00		0.26	0.09	10	19
19	15.97	15.97	33.580	24.664	327.4	0.062	6.04	263.1	107.3	2.3	0.29	0.0	0.00		0.28	0.09	19	18
20 ISL	15.97 D	15.96	33.577 D	24.663	327.6	0.066	6.04	D263.1	D107.2	2.7	0.32	0.4	0.01		0.35	0.11	20	
30	13.70	13.70	33.555	25.134	283.0	0.096	5.65	246.0	95.8	6.5	0.64	4.6	0.08		1.09	0.30	30	17
40	11.28	11.28	33.612	25.647	234.3	0.122	3.38	147.0	54.4	14.5	1.47	18.3	0.10		2.72	0.40	40	16
50	10.78	10.78	33.691	25.797	220.2	0.145	2.87	124.8	45.8	20.3	1.74	21.7	0.05		0.65	0.23	50	15
60	10.35	10.35	33.700	25.880	212.5	0.166	3.10	134.9	49.0	21.5	1.73	21.4	0.02		0.13	0.13	60	14
70	10.07	10.06	33.871	26.062	195.5	0.187	2.49	D108.3	D 39.2	26.7	1.98	24.4	0.00		0.07	0.15	71	13
75 ISL	9.99 D	9.98	33.896 D	26.095	192.4	0.198	2.43	D105.9	D 38.2	27.6	2.01	24.8	0.00		0.05	0.13	76	
85	9.74	9.73	33.960	26.186	184.0	0.215	2.31	100.5	36.1	29.4	2.06	25.6	0.00		0.02	0.08	86	12
100 ISL	9.66 D	9.65	34.011 D	26.241	179.2	0.244	2.17	D 94.2	D 33.8	30.9	2.13	26.3	0.00		0.02	0.09	101	
101	9.66	9.64	34.013	26.243	179.0	0.244	2.13	92.5	33.2	31.0	2.13	26.3	0.00		0.02	0.09	102	11
120	9.55	9.54	34.064	26.301	173.9	0.278	1.94	84.6	30.3	32.8	2.20	27.2	0.00		0.03	0.11	121	10
125 ISL	9.52 D	9.51	34.077 D	26.317	172.5	0.289	1.91	D 83.1	D 29.7	33.3	2.21	27.4	0.00		0.02	0.11	126	
140	9.35	9.34	34.107	26.368	168.0	0.312	1.87	81.3	29.0	34.6	2.25	27.8	0.00		0.02	0.10	141	09
150 ISL	9.34 D	9.32	34.134 D	26.391	165.9	0.331	1.76	D 76.4	D 27.2	35.9	2.30	28.2	0.00		0.02	0.09	151	
170	9.13	9.11	34.183	26.464	159.4	0.361	1.50	65.4	23.2	38.4	2.39	29.1	0.00		0.01	0.07	171	08
200	8.89	8.87	34.233	26.542	152.6	0.408	1.23	53.6	18.9	42.2	2.51	30.3	0.00		0.01	0.06	202	07
230	8.67	8.64	34.244	26.587	148.9	0.453	1.11	48.4	17.0	44.4	2.57	31.0	0.00				232	06
250 ISL	8.53 D	8.50	34.254 D	26.617	146.4	0.486	1.02	D 44.3	D 15.5	46.4	2.62	31.6	0.00				252	
270	8.27	8.24	34.246	26.650	143.6	0.512	0.98	42.5	14.8	48.4	2.66	32.2	0.00				272	05
300 ISL	7.94 D	7.91	34.244 D	26.698	139.3	0.558	0.90	D 39.3	D 13.6	52.9	2.74	33.5	0.00				302	
320	7.62	7.59	34.257	26.756	134.0	0.581	0.74	32.4	11.1	55.9	2.80	34.4	0.00				323	04
380	7.23	7.19	34.280	26.831	127.7	0.660	0.57	24.8	8.4	61.3	2.91	35.8	0.00				383	03
400 ISL	7.17 D	7.13	34.276 D	26.836	127.5	0.691	0.56	D 24.3	D 8.2	63.2	2.94	36.3	0.00				403	
440	6.84	6.79	34.284	26.888	122.9	0.735	0.44	19.2	6.5	67.0	3.00	37.2	0.00				444	02
500 ISL	6.47 D	6.43	34.304 D	26.954	117.3	0.815	0.35	D 15.3	D 5.1	73.1	3.09	38.5	0.00				504	
516	6.37	6.32	34.316	26.977	115.3	0.826	0.31	13.3	4.4	74.8	3.11	38.8	0.00				520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.3 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 30.7 N	118 12.9 W	07/04/2013	1500	UTC	1661 m	320 12 kn	340 04 06	0	1014.6 mb	15.1 C	14.0 C	16 m	0/8		006

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.31	15.31	33.530	24.773	316.4	0.000	6.05	263.8	106.1	2.6	0.39	0.0	0.00		0.43	0.12	0	
3	15.31	15.31	33.530	24.773	316.5	0.010	6.05	263.8	106.1	2.6	0.39	0.0	0.00		0.43	0.12	3	21
9	15.30	15.30	33.532	24.776	316.4	0.030											9	20
10	15.29	15.29	33.533	24.780	316.1	0.032	6.04	263.1	105.8	2.6	0.32	0.0	0.00		0.47	0.07	10	19
20	15.05	15.05	33.527	24.828	311.9	0.063	6.04	263.0	105.3	2.8	0.33	0.0	0.00		0.54	0.14	20	18
29	13.49	13.48	33.478	25.119	284.4	0.090	6.02	262.2	101.6	4.2	0.52	2.4	0.05		1.13	0.35	29	17
30 ISL	13.09 D	13.08	33.474 D	25.195	277.1	0.093	6.08	D265.0	D101.9	4.5	0.55	2.8	0.06		1.16	0.35	30	
39	12.47	12.46	33.494	25.333	264.2	0.117	5.34	D232.4	D 88.2	6.7	0.78	6.2	0.11		1.40	0.37	39	16
49	11.95	11.95	33.490	25.428	255.4	0.143	4.96	D216.0	D 81.1	9.9	1.00	10.2	0.03		0.44	0.29	49	15
50 ISL	11.86 D	11.85	33.496 D	25.451	253.3	0.147	4.74	D206.6	D 77.4	10.4	1.04	10.8	0.03		0.41	0.27	50	
58	10.95	10.95	33.540	25.650	234.4	0.165	4.08	177.7	65.4	14.8	1.36	16.0	0.00		0.17	0.16	58	14
68	10.78	10.77	33.556	25.694	230.5	0.188	3.92	170.6	62.5	15.6	1.41	16.7	0.00		0.16	0.11	69	13
75 ISL	10.47 D	10.46	33.634 D	25.809	219.7	0.206	3.74	D162.9	D 59.3	17.1	1.50	18.0	0.00		0.11	0.10	76	
84	10.39	10.38	33.648	25.834	217.5	0.224	3.45	150.3	54.6	19.1	1.61	19.7	0.00		0.06	0.08	85	12
100	9.76	9.75	33.781	26.045	197.8	0.257	2.98	129.5	46.5	23.9	1.84	23.1	0.00		0.02	0.04	101	11
118	9.54	9.52	33.915	26.187	184.7	0.291	2.56	111.5	39.8	27.9	2.00	25.2	0.00		0.01	0.03	119	10
125 ISL	9.43 D	9.41	33.944 D	26.228	180.9	0.306	2.50	D108.7	D 38.8	29.0	2.04	25.8	0.00		0.01	0.04	126	
139	9.21	9.19	34.005	26.311	173.2	0.329	2.28	99.1	35.2	31.1	2.11	26.9	0.00		0.01	0.04	140	09
150 ISL	9.04 D	9.03	34.039 D	26.364	168.4	0.350	2.22	D 96.6	D 34.2	32.6	2.16	27.5	0.00		0.00	0.04	151	
170	8.86	8.84	34.090	26.433	162.3	0.381	1.96	85.2	30.0	35.4	2.26	28.7	0.00		0.00	0.03	171	08
199	8.54	8.52	34.146	26.528	153.8	0.427	1.66	72.1	25.3	40.2	2.39	29.8	0.00		0.00	0.03	201	07
200 ISL	8.62 D	8.60	34.149 D	26.518	154.7	0.431	1.57	D 68.4	D 24.0	40.3	2.39	29.8	0.00		0.00	0.02	202	
229	8.30	8.28	34.173	26.586	148.8	0.472	1.42	62.0	21.6	43.9	2.49	31.2	0.00				231	06
250 ISL	8.08 D	8.05	34.188 D	26.632	144.7	0.507	1.26	D 54.9	D 19.0	45.6	2.57	32.2	0.00				252	
271	7.88	7.85	34.191	26.665	141.9	0.533	1.10	47.7	16.5	47.3	2.64	33.1	0.00				273	05
300 ISL	7.68 D	7.65	34.225 D	26.721	137.0	0.578	0.90	D 39.1	D 13.4	51.5	2.74	34.3	0.00				302	
322	7.37	7.34	34.242	26.778	131.7	0.603	0.71	31.1	10.6	54.7	2.82	35.2	0.00				325	04
380	6.98	6.94	34.266	26.854	125.3	0.678	0.54	23.5	7.9	60.9	2.94	36.6	0.00				383	03
400 ISL	6.78 D	6.75	34.278 D	26.890	122.1	0.708	0.47	D 20.6	D 6.9	63.3	2.98	37.1	0.00				403	
445	6.48	6.44	34.304	26.952	116.7	0.756	0.35	15.2	5.1	68.6	3.06	38.3	0.00				449	02
500 ISL	6.18 D	6.14	34.320 D	27.004	112.2	0.826	0.28	D 12.3	D 4.1	72.5	3.13	39.3	0.00				504	
517	6.09	6.05	34.331	27.024	110.5	0.838	0.25	10.9	3.6	73.7	3.15	39.6	0.00				521	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.3 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 20.7 N	118 33.8 W	07/04/2013	1902	UTC	1384 m	300 15 kn	290 06 06	1	1015.6 mb	15.0 C	13.9 C	10 m	3/8	ST	007

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.67	14.67	33.490	24.880	306.2	0.000	6.14	267.5	106.2	2.1	0.30	0.0	0.03		0.81	0.05	0	
2 A	14.67	14.67	33.490	24.880	306.3	0.006	6.14	267.5	106.2	2.1	0.30	0.0	0.03		0.81	0.05	2	24
7 A	14.67	14.67	33.490	24.880	306.4	0.021	6.13	267.0	106.0	2.2	0.34	0.0	0.03		0.88B	0.01B	7	23
9 A	14.66	14.66	33.490	24.882	306.3	0.028	6.11	266.1	105.6	2.2	0.35	0.1	0.00		0.78	0.13	9	21
10	14.65	14.65	33.491	24.886	305.9	0.029											10	22
10 ISL	14.65 D	14.65	33.489 D	24.885	306.1	0.031	6.16	D268.3	D106.5	2.2	0.35	0.1	0.00		0.77	0.13	10	
17 A	14.46	14.45	33.492	24.928	302.2	0.052	6.12	266.8	105.5	2.1	0.34	0.0	0.00		0.76	0.14	17	20
20 ISL	14.37 D	14.36	33.486 D	24.942	300.9	0.061	6.22	D271.2	D107.0	2.0	0.34	0.0	0.00		0.92	0.09	20	
23	14.13	14.13	33.490	24.995	296.0	0.070	6.19	269.7	105.9	2.0	0.34	0.0	0.00		1.07	0.05	23	19
30 A	12.67	12.67	33.474	25.277	269.3	0.090	6.10	265.6	101.2	3.1	0.51	2.2	0.03		1.30	0.20	30	18
35 A	12.48	12.48	33.456	25.301	267.2	0.103	6.03	262.6	99.7	3.5	0.57	2.9	0.04		1.27	0.30	35	17
40	12.59	12.58	33.505	25.319	265.6	0.116	5.94	258.8	98.5	3.9	0.71	3.9	0.04		1.14	0.44	40	16
50 ISL	12.55 D	12.54	33.539 D	25.353	262.6	0.144	5.84	D254.5	D 96.8	4.3	0.78	4.5	0.05		0.77	0.49	50	
51	12.55	12.54	33.539	25.353	262.6	0.145	5.82	253.4	96.4	4.3	0.79	4.6	0.05		0.73	0.49	51	15
58	11.80	11.79	33.479	25.449	253.7	0.163	5.37	234.1	87.6	8.5	0.90	8.5	0.05		0.32	0.34	58	14
71	10.88	10.87	33.492	25.627	236.9	0.195	4.60	200.4	73.5	13.8	1.19	13.8	0.00		0.13	0.20	72	13
75 ISL	10.72 D	10.71	33.552 D	25.702	229.9	0.206	4.30	D187.1	D 68.5	14.8	1.26	14.9	0.00		0.12	0.19	76	
87	10.25	10.24	33.608 D	25.826	218.3	0.233	3.89	169.2	61.3	17.9	1.46	18.0	0.00		0.09	0.18	88	12
100 ISL	9.85 D	9.83	33.672 D	25.945	207.3	0.261	3.45	D150.2	D 54.0	21.5	1.65	20.9	0.00		0.05	0.15	101	
102	9.73	9.72	33.705 D	25.991	202.9	0.265	3.43	149.3	53.5	22.1	1.68	21.4	0.00		0.05	0.15	103	11
120	9.51	9.50	33.834	26.127	190.4	0.299	2.81	122.4	43.7	27.0	1.92	24.5	0.00		0.04	0.08	121	10
125 ISL	9.41 D	9.39	33.884 D	26.184	185.0	0.311	2.66	D115.9	D 41.3	28.1	1.95	25.1	0.00		0.03	0.08	126	
140	8.85	8.83	33.943	26.320	172.3	0.335	2.57	111.9	39.4	31.4	2.04	26.8	0.00		0.02	0.07	141	09
150 ISL	9.06 D	9.05	34.037 D	26.360	168.8	0.355	2.15	D 93.7	D 33.2	32.6	2.10	27.3	0.00		0.01	0.07	151	
172	8.98	8.96	34.060	26.391	166.4	0.389	2.02	88.0	31.1	35.1	2.22	28.3	0.00		0.01	0.06	173	08
198	8.65	8.63	34.106	26.479	158.4	0.431	1.80	78.2	27.4	38.6	2.33	29.5	0.00		0.01	0.04	200	07
200 ISL	8.54 D	8.51	34.096 D	26.490	157.4	0.438	1.81	D 78.9	D 27.6	39.0	2.33	29.6	0.00		0.01	0.04	202	
232	7.73	7.70	34.078	26.597	147.4	0.483	1.81	78.6	27.0	45.5	2.41	31.8	0.00				234	06
250 ISL	7.72 D	7.69	34.133 D	26.642	143.5	0.513	1.40	D 60.9	D 20.9	48.8	2.57	32.8	0.00				252	
270	7.77	7.74	34.228	26.709	137.6	0.537	0.87	37.8	13.0	52.4	2.74	34.0	0.00				272	05
300 ISL	7.55 D	7.52	34.246 D	26.756	133.6	0.583	0.68	D 29.4	D 10.1	56.7	2.82	34.9	0.00				302	
318	7.41	7.38	34.259	26.787	130.9	0.602	0.57	24.9	8.5	59.2	2.87	35.5	0.00				321	04
381	7.01	6.97	34.288	26.867	124.1	0.682	0.40	17.6	5.9	65.6	3.00	36.8	0.00				384	03
400 ISL	6.78 D	6.74	34.294 D	26.903	120.8	0.711	0.38	D 16.6	D 5.6	67.9	3.03	37.3	0.00				403	
440	6.49	6.45	34.304	26.950	116.7	0.753	0.32	13.7	4.6	72.7	3.08	38.4	0.00				444	02
500 ISL	6.23 D	6.18	34.321 D	26.999	112.8	0.829	0.28	D 12.2	D 4.1	77.6	3.14	39.2	0.00				504	
515	6.14	6.09	34.327	27.015	111.4	0.839	0.26	11.5	3.8	78.8	3.15	39.4	0.00				519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
B) SECOND FLUOROMETER READING NOT RECORDED CHLOROPHYLL AND PHAEOPIGMENT CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.3 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 10.8 N	118 53.5 W	08/04/2013	0045	UTC	1468 m	320 22 kn	310 07 06	0	1013.3 mb	14.7 C	13.2 C		0/8		008

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.33	14.33	33.445	24.917	302.7	0.000	6.09	265.2	104.6	3.4	0.37	0.3	0.00	0.07	0.72	0.17	0	
2	14.33	14.33	33.445	24.917	302.8	0.006	6.09	265.2	104.6	3.4	0.37	0.3	0.00	0.07	0.72	0.17	2	20
10	14.32	14.32	33.440	24.915	303.1	0.030	6.10	265.9	104.8	3.4	0.35	0.2	0.00	0.04	0.69	0.17	10	19
20 ISL	14.32 D	14.31	33.444 D	24.920	303.0	0.061	6.13	D266.9	D105.2	3.4	0.36	0.2	0.00	0.05	0.77	0.17	20	
21	14.31	14.31	33.450	24.927	302.4	0.064	6.09	265.4	104.6	3.3	0.36	0.2	0.00	0.05	0.78	0.17	21	18
30	14.20	14.20	33.444	24.945	300.9	0.091	6.09	265.2	104.3	3.3	0.35	0.2	0.00	0.05	0.81	0.18	30	17
40	13.92	13.91	33.436	24.998	296.2	0.121	6.04	263.2	102.9	3.6	0.38	0.8	0.03	0.05	0.88	0.26	40	16
49	13.04	13.03	33.424	25.168	280.3	0.147	5.79	252.2	96.8	5.0	0.54	3.0	0.10	0.11	0.78	0.38	49	15
50 ISL	13.08 D	13.07	33.433 D	25.166	280.4	0.151	5.70	D248.4	D 95.5	5.4	0.58	3.6	0.09	0.11	0.73	0.37	50	
59	11.93	11.92	33.433	25.389	259.4	0.174	5.11	222.6	83.5	8.9	0.89	8.9	0.03	0.08	0.29	0.23	59	14
70	10.76	10.75	33.516 D	25.666	233.1	0.202	4.39	191.3	70.0	13.6	1.23	14.3	0.00	0.01	0.10	0.11	71	13
75 ISL	10.68 D	10.67	33.522 D	25.686	231.4	0.214	4.19	D182.3	D 66.6	14.4	1.28	15.1	0.00	0.02	0.09	0.10	76	
85	10.55	10.54	33.537	25.720	228.4	0.235	4.04	176.0	64.1	16.0	1.39	16.8	0.00	0.03	0.06	0.08	86	12
100	10.02	10.00	33.737 D	25.967	205.2	0.270	3.25	141.6	51.1	21.8	1.71	21.3	0.00	0.05	0.02	0.06	101	11
120	9.55	9.53	33.861	26.143	188.9	0.307	2.72	118.5	42.3	27.2	1.94	24.7	0.00	0.04	0.01	0.05	121	10
125 ISL	9.40 D	9.39	33.882 D	26.184	185.1	0.319	2.68	D116.7	D 41.6	28.3	1.97	25.2	0.00	0.05	0.01	0.04	126	
140	8.90	8.88	33.938	26.308	173.5	0.343	2.66	115.6	40.7	31.5	2.04	26.8	0.00	0.08	0.00	0.03	141	09
150 ISL	8.77 D	8.76	33.954 D	26.340	170.6	0.363	2.60	D113.2	D 39.8	32.7	2.08	27.3	0.00	0.07	0.00	0.03	151	
170	8.61	8.59	34.005	26.406	164.7	0.394	2.34	101.8	35.7	35.2	2.15	28.3	0.00	0.06	0.00	0.03	171	08
200	8.59	8.57	34.090	26.477	158.6	0.443	1.86	80.8	28.3	39.2	2.32	29.8	0.00	0.11	0.00	0.03	202	07
230	7.86	7.84	34.049	26.554	151.6	0.489	2.05	89.0	30.7	42.2	2.30	30.7	0.00	0.02			232	06
250 ISL	7.73 D	7.70	34.064 D	26.586	148.8	0.523	1.84	D 80.2	D 27.6	45.6	2.40	32.0	0.00	0.03			252	
270	7.50	7.47	34.082	26.633	144.6	0.548	1.58	68.7	23.5	49.0	2.50	33.2	0.00	0.04			272	05
300 ISL	7.10 D	7.07	34.114 D	26.715	137.1	0.595	1.25	D 54.4	D 18.4	53.8	2.62	34.6	0.00	0.02			302	
320	7.02	6.99	34.117	26.729	136.0	0.618	1.13	49.2	16.6	57.0	2.70	35.5	0.00	0.00			323	04
380	6.45	6.41	34.171	26.849	125.2	0.696	0.75	32.5	10.8	67.1	2.90	37.9	0.00	0.01			383	03
400 ISL	6.29 D	6.26	34.183 D	26.879	122.6	0.726	0.68	D 29.4	D 9.8	69.4	2.94	38.3	0.00	0.01			403	
442	6.07	6.03	34.213	26.932	118.0	0.772	0.54	23.3	7.7	74.3	3.02	39.1	0.00	0.02			446	02
500 ISL	5.76 D	5.71	34.264 D	27.013	110.9	0.844	0.38	D 16.4	D 5.4	81.2	3.11	40.3	0.00	0.06			504	
515	5.66	5.61	34.265	27.025	109.8	0.855	0.35	15.4	5.0	82.9	3.13	40.6	0.00	0.07			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 0.6 N	119 14.2 W	11/04/2013	1024	UTC	1596 m	300 15 kn			1016.3 mb	14.4 C	13.1 C				021

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.46	13.46	33.529	25.162	279.4	0.000	5.95	259.1	100.4	4.1	0.61	3.5	0.09	0.53	0.50	0.17	0	
2	13.46	13.46	33.529	25.162	279.4	0.006	5.95	259.1	100.4	4.1	0.61	3.5	0.09	0.53	0.50	0.17	2	23
10	13.45	13.45	33.534	25.168	279.1	0.028	5.96	259.4	100.5	4.1	0.61	3.5	0.10	0.40	0.59	0.21	10	21
10	13.45	13.45	33.530	25.165	279.4	0.029											10	22
20 ISL	13.24 D	13.23	33.557 D	25.230	273.5	0.056	6.02	D262.4	D101.2	4.2	0.62	3.6	0.11	0.49	0.55	0.22	20	
25	13.19	13.19	33.559	25.240	272.7	0.069	5.99	261.1	100.7	4.2	0.63	3.6	0.12	0.53	0.53	0.23	25	20
30 ISL	13.15 D	13.15	33.551 D	25.242	272.6	0.083	5.93	D258.4	D 99.5	4.2	0.63	3.6	0.12	0.54	0.65	0.27	30	
41	13.13	13.12	33.552	25.249	272.3	0.113	5.90	257.1	99.0	4.3	0.64	3.7	0.12	0.55	0.92	0.36	41	19
50	13.08	13.08	33.561	25.265	271.0	0.137	5.92	257.7	99.1	4.2	0.65	3.7	0.12	0.68	0.80	0.39	50	18
63	13.03	13.02	33.555	25.271	270.9	0.173	5.85	254.7	97.9	4.4	0.66	3.8	0.13	0.83	0.62	0.31	64	17
75 ISL	12.89 D	12.87	33.545 D	25.293	269.1	0.206	5.78	D251.8	D 96.4	4.9	0.70	4.4	0.12	0.87	0.44	0.26	76	
76	12.87	12.86	33.544	25.295	268.9	0.208	5.77	251.5	96.3	4.9	0.70	4.5	0.12	0.87	0.43	0.26	77	16
87	12.13	12.12	33.516	25.417	257.5	0.237	5.55	241.8	91.1	6.5	0.79	6.2	0.13	0.69	0.33	0.25	88	15
100	10.14	10.13	33.511	25.770	223.9	0.268	4.29	186.9	67.5	15.7	1.34	16.3	0.02	0.08	0.06	0.07	101	14
112	9.79	9.77	33.604	25.902	211.5	0.294	3.89	169.4	60.8	19.1	1.52	19.3	0.02	0.10	0.04	0.06	113	12
125 ISL	9.22 D	9.20	33.810 D	26.157	187.6	0.322	3.04	D132.4	D 46.9	25.7	1.85	24.0	0.02	0.07	0.02	0.06	126	
126	9.19	9.18	33.788	26.144	188.8	0.322	3.09	134.4	47.6	26.2	1.87	24.4	0.02	0.07	0.01	0.06	127	10
141	8.90	8.88	33.900	26.278	176.3	0.349	2.75	119.6	42.1	30.5	1.96	26.4	0.02	0.07	0.01	0.04	142	09
150 ISL	8.86 D	8.85	33.920 D	26.300	174.4	0.367	2.72	D118.5	D 41.7	31.6	2.00	26.9	0.02	0.07	0.01	0.04	151	
171	8.59	8.57	33.974	26.385	166.7	0.401	2.53	109.9	38.5	34.2	2.10	27.9	0.02	0.07	0.01	0.03	172	08
200 ISL	8.19 D	8.17	34.043 D	26.500	156.2	0.451	2.07	D 90.2	D 31.3	39.9	2.28	30.1	0.00	0.08	0.01	0.04	202	
201	8.18	8.16	34.042	26.501	156.1	0.449	2.09	91.0	31.6	40.1	2.29	30.2	0.00	0.08	0.01	0.04	203	07
230	7.87	7.85	34.095	26.589	148.2	0.493	1.63	70.8	24.4	45.9	2.48	32.3	0.00	0.09			232	06
250 ISL	7.81 D	7.79	34.115 D	26.614	146.2	0.526	1.49	D 64.7	D 22.3	49.2	2.56	33.3	0.00	0.08			252	
271	7.42	7.39	34.128	26.680	140.1	0.553	1.26	54.6	18.6	52.7	2.64	34.3	0.00	0.07			273	05
300 ISL	7.07 D	7.04	34.140 D	26.739	134.8	0.597	1.06	D 46.2	D 15.6	57.0	2.73	35.5	0.00	0.08			302	
318	6.97	6.94	34.160	26.770	132.1	0.617	0.97	42.3	14.3	59.7	2.79	36.2	0.00	0.09			321	04
381	6.76	6.73	34.262	26.880	122.7	0.697	0.50	21.9	7.4	66.8	2.98	37.3	0.00	0.08			384	03
400 ISL	6.55 D	6.51	34.267 D	26.912	119.7	0.725	0.45	D 19.5	D 6.5	69.0	3.01	37.8	0.00	0.08			403	
439	6.35	6.31	34.292	26.958	115.8	0.766	0.36	15.8	5.3	73.7	3.08	38.8	0.00	0.09			443	02
500 ISL	6.07 D	6.02	34.314 D	27.013	111.2	0.842	0.29	D 12.4	D 4.1	78.0	3.14	39.5	0.00	0.10			504	
515	6.05	6.00	34.315	27.017	111.1	0.852	0.27	11.7	3.9	79.1	3.15	39.7	0.00	0.10			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 50.9 N	119 34.8 W	11/04/2013	1513	UTC	1845 m	320 19 kn	320 04 06	2	1016.3 mb	14.0 C	13.0 C	16 m	8/8	SC	022

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.18	14.18	33.358	24.883	305.9	0.000	5.99	261.0	102.5	3.4	0.33	0.1	0.03	0.05	0.46	0.16	0	
1 A	14.18	14.17	33.358	24.883	306.0	0.003	5.99	261.0	102.5	3.4	0.33	0.1	0.03	0.05	0.46	0.16	1	21
10 A	14.16	14.16	33.358	24.886	306.0	0.031	6.00	261.5	102.7	3.3	0.33	0.1	0.02	0.02	0.47	0.14	10	20
14 A	14.15	14.15	33.358	24.888	305.8	0.043	6.02	262.2	102.9	3.4	0.33	0.1	0.03	0.03	0.48	0.12	14	19
20 ISL	14.14 D	14.14	33.359 D	24.891	305.8	0.061	6.00	D261.6	D102.7	3.4	0.34	0.2	0.03	0.03	0.49	0.12	20	
25 A	14.08	14.08	33.372	24.914	303.7	0.076	6.00	261.5	102.5	3.4	0.34	0.2	0.03	0.03	0.50	0.12	25	18
30 ISL	14.03 D	14.03	33.384 D	24.934	302.0	0.092	6.06	D263.9	D103.4	3.4	0.34	0.3	0.03	0.03	0.53	0.14	30	
36	14.01	14.00	33.396	24.949	300.8	0.110	6.04	263.1	103.0	3.4	0.35	0.4	0.02	0.04	0.57	0.15	36	17
47 A	13.92	13.91	33.389	24.963	299.7	0.143	6.05	263.4	102.9	3.4	0.36	0.4	0.04	0.05	0.85	0.16	47	16
50 ISL	13.91 D	13.91	33.388 D	24.963	299.8	0.153	6.05	D263.5	D103.0	3.4	0.36	0.4	0.04	0.05	0.80	0.18	50	
55 A	13.91	13.90	33.389	24.966	299.8	0.167	6.03	262.7	102.6	3.4	0.36	0.4	0.03	0.05	0.73	0.20	55	15
62	13.89	13.88	33.398	24.976	299.0	0.188	6.03	262.6	102.5	3.4	0.37	0.5	0.04	0.11	0.64	0.18	62	14
70	13.50	13.49	33.376	25.039	293.2	0.211	5.97	259.9	100.7	3.5	0.38	0.7	0.05	0.15	0.46	0.18	71	13
75 ISL	13.02 D	13.01	33.342 D	25.109	286.6	0.227	5.86	D255.3	D 97.9	4.2	0.46	1.9	0.10	0.15	0.38	0.18	76	
85	12.44	12.42	33.340	25.222	276.1	0.254	5.66	246.4	93.3	5.5	0.62	4.3	0.19	0.15	0.23	0.18	86	12
100	11.29	11.27	33.417	25.496	250.1	0.293	4.87	212.1	78.5	9.6	0.95	10.3	0.03	0.00	0.14	0.10	101	11
120	10.00	9.99	33.548	25.823	219.3	0.340	4.12	179.5	64.7	16.9	1.41	17.6	0.02	0.00	0.03	0.03	121	10
125 ISL	9.70 D	9.69	33.644 D	25.948	207.5	0.354	3.74	D162.8	D 58.3	18.8	1.51	19.0	0.02	0.00	0.02	0.03	126	
141	9.41	9.40	33.766	26.091	194.2	0.383	3.18	138.5	49.3	24.9	1.81	23.5	0.00	0.00	0.01	0.02	142	09
150 ISL	9.26 D	9.25	33.816 D	26.154	188.4	0.403	3.02	D131.6	D 46.7	26.8	1.87	24.5	0.01	0.00	0.01	0.03	151	
171	8.88	8.86	33.931	26.306	174.3	0.438	2.63	114.5	40.3	31.4	2.02	26.8	0.02	0.00	0.01	0.03	172	08
200 ISL	8.58 D	8.56	33.996 D	26.404	165.5	0.491	2.36	D102.6	D 35.9	35.9	2.17	28.6	0.00	0.00	0.00	0.03	202	
203	8.52	8.49	34.015	26.429	163.2	0.493	2.26	98.2	34.3	36.4	2.18	28.8	0.00	0.00	0.00	0.03	205	07
233	8.14	8.12	34.072	26.532	153.9	0.540	1.91	83.1	28.8	41.6	2.33	30.6	0.00	0.00			235	06
250 ISL	7.97 D	7.95	34.096 D	26.575	150.0	0.570	1.70	D 73.9	D 25.5	44.3	2.41	31.5	0.00	0.00			252	
270	7.83	7.80	34.129	26.624	145.7	0.596	1.44	62.4	21.5	47.5	2.50	32.5	0.00	0.00			272	05
300 ISL	7.32 D	7.29	34.128 D	26.695	139.1	0.643	1.27	D 55.3	D 18.8	52.4	2.61	34.0	0.00	0.01			302	
325	7.19	7.16	34.168	26.746	134.7	0.672	1.00	43.5	14.8	56.6	2.71	35.3	0.00	0.02			328	04
379	6.62	6.58	34.158	26.816	128.5	0.744	0.83	36.0	12.1	64.2	2.83	37.3	0.00	0.00			382	03
400 ISL	6.45 D	6.42	34.181 D	26.857	124.8	0.776	0.71	D 30.9	D 10.3	66.6	2.89	37.7	0.00	0.00			403	
434	6.37	6.33	34.231	26.908	120.4	0.812	0.54	23.3	7.8	70.6	2.98	38.3	0.00	0.00			438	02
500 ISL	5.87 D	5.83	34.270 D	27.002	112.0	0.896	0.36	D 15.7	D 5.2	78.8	3.10	39.7	0.00	0.00			504	
514	5.88	5.84	34.300	27.026	110.0	0.904	0.29	12.5	4.1	80.5	3.12	40.0	0.00	0.00			518	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 93.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 30.8 N	120 15.3 W	11/04/2013	2116	UTC	3962 m	310 23 kn	320 07 07	0	1015.7 mb	14.8 C	12.9 C	14 m	0/8		023

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.06	15.06	33.457	24.769	316.8	0.000	5.87	255.7	102.3	3.1	0.31	0.0	0.00	0.00	0.21	0.06	0	
2	15.06	15.06	33.457	24.769	316.8	0.006	5.87	255.7	102.3	3.1	0.31	0.0	0.00	0.00	0.21	0.06	2	20
10	15.06	15.06	33.454	24.769	317.1	0.032	5.87	255.8	102.4	3.0	0.31	0.1	0.00	0.00	0.20	0.05	10	19
20 ISL	15.04 D	15.04	33.452 D	24.773	317.1	0.064	5.88	D256.2	D102.5	3.0	0.30	0.0	0.00	0.00	0.21	0.06	20	
24	15.02	15.02	33.454	24.778	316.7	0.076	5.86	255.4	102.1	3.0	0.30	0.0	0.00	0.00	0.21	0.06	24	18
30 ISL	14.98 D	14.97	33.452 D	24.787	316.1	0.096	5.87	D255.9	D102.2	3.0	0.30	0.0	0.00	0.00	0.23	0.06	30	
40	14.90	14.89	33.451	24.803	314.9	0.127	5.88	256.4	102.3	3.0	0.30	0.0	0.00	0.00	0.26	0.07	40	17
50 ISL	14.85 D	14.84	33.449 D	24.813	314.2	0.159	5.88	D256.4	D102.1	3.0	0.30	0.0	0.00	0.00	0.31	0.09	50	
51	14.85	14.84	33.450	24.814	314.2	0.161	5.88	256.2	102.1	3.0	0.30	0.0	0.00	0.00	0.31	0.10	51	16
61	14.83	14.82	33.449	24.818	314.1	0.193	5.89	256.5	102.1	3.0	0.32	0.0	0.00	0.07	0.36	0.12	61	15
75 ISL	13.64 D	13.63	33.404 D	25.032	294.0	0.237	5.86	D255.1	D 99.1	3.6	0.40	1.0	0.00	0.03	0.57	0.36	76	
76	13.44	13.43	33.396	25.068	290.6	0.238	5.84	254.6	98.5	3.7	0.41	1.1	0.00	0.03	0.59	0.37	77	14
86	12.79	12.77	33.372	25.179	280.2	0.267	5.54	241.4	92.1	5.1	0.61	4.0	0.12	0.03	0.37	0.30	87	13
98	11.97	11.96	33.369	25.333	265.7	0.299	5.15	224.4	84.2	7.3	0.83	7.7	0.03	0.02	0.22	0.20	99	12
100 ISL	11.75 D	11.73	33.384 D	25.387	260.7	0.307	5.10	D222.0	D 82.9	8.1	0.88	8.6	0.03	0.02	0.20	0.18	101	
112	10.70	10.69	33.462	25.636	237.0	0.335	4.54	197.6	72.2	12.6	1.18	13.7	0.02	0.05	0.07	0.06	113	11
125	10.07	10.05	33.563	25.824	219.4	0.364	4.01	174.4	62.9	17.3	1.46	18.0	0.02	0.13	0.03	0.04	126	10
142	9.61	9.59	33.662	25.978	205.0	0.400	3.62	157.4	56.2	21.4	1.64	21.2	0.00	0.00	0.01	0.03	143	09
150 ISL	9.43 D	9.42	33.722 D	26.054	198.0	0.419	3.42	D148.8	D 53.0	23.3	1.72	22.3	0.00	0.00	0.01	0.03	151	
170	9.15	9.13	33.847	26.198	184.6	0.455	2.92	127.2	45.0	27.9	1.92	25.2	0.00	0.00	0.00	0.02	171	08
200 ISL	8.65 D	8.63	33.997 D	26.395	166.4	0.511	2.38	D103.3	D 36.2	34.4	2.13	28.1	0.00	0.00	0.00	0.02	202	
201	8.65	8.63	33.997	26.395	166.4	0.509	2.40	104.3	36.6	34.7	2.14	28.2	0.00	0.00	0.00	0.02	203	07
231	8.14	8.12	34.068	26.528	154.2	0.557	2.00	87.0	30.2	40.9	2.32	30.6	0.00	0.00			233	06
250 ISL	8.02 D	8.00	34.060 D	26.540	153.3	0.591	1.91	D 83.2	D 28.8	43.3	2.38	31.4	0.00	0.00			252	
273	7.73	7.70	34.077	26.597	148.2	0.621	1.72	74.9	25.7	46.1	2.45	32.3	0.00	0.00			275	05
300 ISL	7.39 D	7.37	34.100 D	26.663	142.2	0.665	1.42	D 61.6	D 21.0	51.1	2.58	33.9	0.00	0.00			302	
320	7.18	7.15	34.115	26.705	138.4	0.689	1.23	53.3	18.1	54.8	2.67	35.1	0.00	0.00			323	04
381	6.72	6.68	34.159	26.804	129.8	0.770	0.84	36.6	12.3	62.9	2.85	37.2	0.00	0.04			384	03
400 ISL	6.61 D	6.57	34.176 D	26.833	127.2	0.801	0.75	D 32.7	D 11.0	65.3	2.89	37.7	0.00	0.03			403	
442	6.30	6.26	34.208	26.899	121.3	0.847	0.57	24.7	8.2	70.8	2.99	38.8	0.00	0.00			446	02
500 ISL	6.00 D	5.95	34.256 D	26.977	114.6	0.922	0.38	D 16.5	D 5.4	78.2	3.08	40.0	0.00	0.00			504	
513	5.86	5.81	34.259	26.996	112.8	0.930	0.37	15.9	5.2	79.8	3.10	40.3	0.00	0.00			517	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 93.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 10.1 N	120 56.2 W	12/04/2013	0458	UTC	3927 m	320 24 kn			1014.4 mb	13.8 C	11.6 C				024

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.31	14.31	33.289	24.800	313.8	0.000	6.01	261.9	103.1	3.2	0.31	0.1	0.00	0.08	0.19	0.05	0	
2	14.31	14.31	33.289	24.800	313.9	0.006	6.01	261.9	103.1	3.2	0.31	0.1	0.00	0.08	0.19	0.05	2	20
10	14.32	14.32	33.293	24.802	313.9	0.031	5.99	261.2	102.9	3.2	0.31	0.0	0.00	0.03	0.17	0.05	10	19
20 ISL	14.32 D	14.32	33.287 D	24.799	314.6	0.063	5.97	D260.3	D102.5	3.1	0.30	0.0	0.00	0.02	0.17	0.06	20	
24	14.29	14.29	33.289	24.806	314.0	0.075	5.98	260.5	102.5	3.1	0.30	0.0	0.00	0.02	0.17	0.06	24	18
30 ISL	14.28 D	14.27	33.284 D	24.806	314.2	0.095	5.98	D260.5	D102.5	3.2	0.30	0.0	0.00	0.03	0.19	0.07	30	
40	14.09	14.09	33.279	24.841	311.1	0.126	6.01	262.1	102.7	3.2	0.31	0.0	0.00	0.05	0.21	0.08	40	17
50	13.96	13.95	33.277	24.869	308.9	0.157	6.05	263.4	102.9	3.3	0.31	0.0	0.00	0.08	0.39	0.08	50	16
60	13.94	13.93	33.277	24.873	308.8	0.187	6.01	262.0	102.3	3.3	0.32	0.0	0.00	0.06	0.40	0.17	60	15
75 ISL	12.93 D	12.92	33.310 D	25.102	287.3	0.234	6.11	D266.2	D101.9	4.0	0.44	1.3	0.09	0.28	0.46	0.23	76	
76	12.91	12.90	33.310	25.106	286.9	0.235	6.09	265.5	101.5	4.0	0.45	1.4	0.10	0.29	0.46	0.24	77	14
86	12.66	12.65	33.336	25.175	280.6	0.263	5.97	260.1	99.0	4.7	0.52	2.2	0.19	0.51	0.33	0.18	87	13
99	12.35	12.33	33.387	25.276	271.3	0.299	5.96	259.7	98.2	4.7	0.64	3.8	0.17	0.70	0.16	0.12	100	12
100 ISL	12.28 D	12.27	33.382 D	25.285	270.5	0.304	5.95	D259.2	D 97.9	4.9	0.65	4.1	0.17	0.66	0.16	0.12	101	
112	11.78	11.77	33.376	25.375	262.1	0.334	5.43	236.6	88.4	7.3	0.80	7.2	0.18	0.17	0.13	0.15	113	11
125	10.95	10.93	33.404	25.547	245.9	0.367	4.98	217.0	79.7	10.4	1.00	10.9	0.09	0.09	0.10	0.10	126	10
140	10.02	10.00	33.500	25.784	223.5	0.402	4.31	187.5	67.5	15.5	1.33	16.3	0.03	0.00	0.05	0.06	141	09
150 ISL	9.74 D	9.73	33.591 D	25.900	212.6	0.427	3.95	D172.0	D 61.6	17.4	1.41	17.7	0.03	0.01	0.03	0.05	151	
171	9.28	9.26	33.697	26.060	197.7	0.467	3.87	168.6	59.8	21.5	1.57	20.5	0.02	0.03	0.01	0.03	172	08
200 ISL	8.90 D	8.88	33.907 D	26.286	176.8	0.525	2.78	D121.1	D 42.6	30.0	1.97	25.9	0.00	0.05	0.01	0.03	202	
201	8.89	8.87	33.905	26.285	176.9	0.523	2.80	122.0	43.0	30.3	1.98	26.1	0.00	0.05	0.01	0.03	203	07
230	8.54	8.51	33.979	26.399	166.6	0.573	2.50	108.6	38.0	34.4	2.10	28.0	0.00	0.03			232	06
250 ISL	8.22 D	8.19	34.025 D	26.484	158.8	0.610	2.22	D 96.5	D 33.5	38.3	2.22	29.5	0.00	0.03			252	
270	8.05	8.02	34.060	26.537	154.1	0.637	1.92	83.4	28.8	42.2	2.34	30.9	0.00	0.02			272	05
300 ISL	7.79 D	7.76	34.102 D	26.609	147.7	0.687	1.53	D 66.7	D 23.0	47.2	2.48	32.6	0.00	0.01			302	
320	7.57	7.53	34.128	26.661	142.9	0.711	1.30	56.4	19.3	50.6	2.58	33.7	0.00	0.00			323	04
380	6.78	6.74	34.148	26.787	131.4	0.794	0.88	38.2	12.9	61.7	2.81	36.8	0.00	0.02			383	03
400 ISL	6.65 D	6.61	34.154 D	26.810	129.4	0.825	0.81	D 35.2	D 11.8	64.4	2.86	37.4	0.00	0.01			403	
440	6.30	6.26	34.185	26.881	123.0	0.870	0.64	27.8	9.3	69.7	2.95	38.5	0.00	0.00			444	02
500 ISL	5.92 D	5.88	34.231 D	26.966	115.4	0.949	0.44	D 19.1	D 6.3	77.8	3.05	39.8	0.00	0.08			504	
512	5.85	5.81	34.245	26.985	113.8	0.955	0.40	17.5	5.8	79.4	3.07	40.0	0.00	0.09			516	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
30 51.0 N	121 35.6 W	12/04/2013	1158	UTC	4145 m	350 29 kn			1013.6 mb	13.9 C	12.0 C				025

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.79	14.79	33.365	24.757	317.9	0.000	5.89	256.6	102.0	2.9	0.29	0.0	0.00	0.03	0.15	0.04	0	
3	14.79	14.79	33.365	24.757	318.0	0.010	5.89	256.6	102.0	2.9	0.29	0.0	0.00	0.03	0.15	0.04	3	20
10	14.80	14.79	33.360	24.753	318.6	0.032	5.88	256.4	102.0	2.9	0.28	0.0	0.00	0.06	0.14	0.04	10	19
20 ISL	14.80 D	14.79	33.359 D	24.753	319.0	0.064	5.87	D255.8	D101.7	2.9	0.28	0.0	0.00	0.05	0.15	0.04	20	
26	14.80	14.80	33.361	24.754	319.1	0.083	5.88	256.2	101.9	2.9	0.28	0.0	0.00	0.05	0.15	0.05	26	18
30 ISL	14.80 D	14.80	33.358 D	24.752	319.4	0.096	5.91	D257.4	D102.4	2.9	0.28	0.0	0.00	0.04	0.15	0.05	30	
41	14.80	14.80	33.359	24.753	319.6	0.131	5.89	256.7	102.1	2.9	0.27	0.0	0.00	0.02	0.15	0.04	41	17
50	14.76	14.75	33.359	24.763	318.9	0.159	5.89	256.6	102.0	2.8	0.27	0.0	0.00	0.06	0.15	0.05	50	16
62	14.12	14.11	33.342	24.886	307.6	0.197	5.98	260.6	102.2	2.8	0.27	0.0	0.00	0.03	0.21	0.07	62	15
75 ISL	13.93 D	13.92	33.329 D	24.915	305.2	0.239	5.93	D258.5	D101.0	3.1	0.31	0.1	0.03	0.00	0.57	0.40	76	
76	13.87	13.86	33.335	24.932	303.6	0.240	5.90	257.0	100.3	3.1	0.31	0.1	0.03	0.00	0.60	0.43	77	14
87	13.40	13.39	33.327	25.022	295.3	0.273	5.85	254.9	98.5	3.5	0.35	0.8	0.14	0.03	0.48	0.36	88	13
100 ISL	13.02 D	13.01	33.358 D	25.123	286.0	0.313	5.79	D252.2	D 96.7	4.4	0.47	2.4	0.37	0.00	0.24	0.16	101	
101	12.94	12.92	33.361	25.142	284.3	0.313	5.76	251.0	96.1	4.5	0.48	2.5	0.39	0.00	0.23	0.15	102	12
113	11.82	11.81	33.302	25.310	268.3	0.347	5.34	232.6	87.0	6.2	0.65	6.0	0.03	0.06	0.15	0.16	114	11
125 ISL	10.90 D	10.88	33.393 D	25.548	245.8	0.381	4.93	D214.6	D 78.7	9.0	0.87	9.9	0.00	0.00	0.09	0.08	126	
126	10.88	10.87	33.384	25.544	246.1	0.380	4.96	215.8	79.1	9.3	0.89	10.2	0.00	0.00	0.09	0.07	127	10
142	10.40	10.38	33.456	25.685	233.1	0.418	4.69	204.0	74.1	12.1	1.07	13.2	0.00	0.02	0.05	0.04	143	09
150 ISL	10.04 D	10.02	33.513 D	25.791	223.1	0.440	4.60	D200.1	D 72.1	14.4	1.21	15.3	0.00	0.02	0.04	0.04	151	
172	9.52	9.50	33.675	26.004	203.2	0.483	3.66	159.2	56.8	20.8	1.58	20.9	0.00	0.02	0.01	0.02	173	08
200	8.94	8.92	33.873	26.252	180.1	0.537	3.03	132.0	46.5	27.9	1.85	25.0	0.00	0.05	0.00	0.02	202	07
228	8.56	8.53	33.983	26.399	166.6	0.586	2.52	109.5	38.3	33.6	2.05	27.7	0.00	0.08			230	06
250 ISL	8.30 D	8.28	34.060 D	26.498	157.4	0.626	2.00	D 87.1	D 30.3	38.0	2.21	29.4	0.00	0.05			252	
269	8.09	8.06	34.089	26.553	152.5	0.651	1.80	78.3	27.1	41.8	2.34	30.9	0.00	0.03			271	05
300 ISL	7.55 D	7.52	34.110 D	26.648	143.7	0.702	1.43	D 62.1	D 21.2	47.7	2.49	32.8	0.00	0.05			302	
322	7.40	7.36	34.127	26.685	140.6	0.728	1.24	53.9	18.4	51.9	2.60	34.2	0.00	0.07			325	04
381	7.09	7.05	34.215	26.799	130.6	0.808	0.72	31.5	10.7	59.7	2.83	36.1	0.00	0.04			384	03
400 ISL	6.94 D	6.90	34.226 D	26.827	128.1	0.839	0.65	D 28.2	D 9.5	61.7	2.87	36.5	0.00	0.04			403	
440	6.68	6.64	34.243	26.877	123.8	0.883	0.54	23.7	7.9	65.9	2.94	37.4	0.00	0.03			444	02
500 ISL	6.22 D	6.18	34.276 D	26.964	116.0	0.962	0.38	D 16.4	D 5.4	74.0	3.06	38.9	0.00	0.07			504	
517	6.12	6.07	34.280	26.980	114.6	0.974	0.35	15.2	5.0	76.4	3.09	39.3	0.00	0.08			521	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
30 30.3 N	122 13.4 W	12/04/2013	1948	UTC	4017 m	330 24 kn	350 12 08	2	1015.9 mb	14.7 C	12.4 C	22 m	8/8	SC	026

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.16	16.16	33.525	24.579	334.9	0.000	5.69	247.9	101.4	2.7	0.28	0.2	0.00	0.12	0.09	0.01	0	
2 A	16.16	16.16	33.525	24.579	334.9	0.007	5.69	247.9	101.4	2.7	0.28	0.2	0.00	0.12	0.09	0.01	2	21
10 ISL	16.15 D	16.15	33.522 D	24.578	335.3	0.034	5.68	D247.7	D101.3	2.7	0.28	0.1	0.00	0.06	0.09	0.01	10	
14 A	16.16	16.15	33.534	24.587	334.6	0.047	5.70	D248.3	D101.6	2.7	0.28	0.0	0.00	0.03	0.09	0.01	14	20
18 A	16.16	16.16	33.527	24.580	335.4	0.060	5.69	247.9	101.4	2.7	0.28	0.0	0.00	0.04	0.09	0.01	18	19
20 ISL	16.16 D	16.16	33.524 D	24.578	335.7	0.067	5.69	D248.2	D101.5	2.7	0.28	0.0	0.00	0.05	0.09	0.01	20	
30 ISL	16.17 D	16.16	33.524 D	24.578	336.0	0.101	5.70	D248.2	D101.5	2.7	0.28	0.0	0.00	0.10	0.09	0.01	30	
34 A	16.16	16.16	33.525	24.580	336.0	0.114	5.69	248.1	101.5	2.7	0.28	0.0	0.00	0.12	0.08	0.02	34	18
45	16.15	16.15	33.526	24.583	336.1	0.151	5.70	248.3	101.5	2.6	0.28	0.0	0.00	0.07	0.09	0.00	45	17
50 ISL	16.10 D	16.09	33.519 D	24.591	335.5	0.169	5.69	D248.1	D101.4	2.7	0.28	0.0	0.00	0.07	0.10	0.01	50	
56	15.01	15.00	33.474	24.799	315.8	0.187	5.77	251.4	100.5	2.7	0.28	0.0	0.00	0.07	0.11	0.03	56	16
66 A	14.58	14.57	33.359	24.802	315.8	0.219	5.94	258.8	102.5	2.9	0.30	0.0	0.00	0.08	0.16	0.01	67	15
75 ISL	14.42 D	14.41	33.363 D	24.840	312.4	0.249	5.94	D258.9	D102.2	2.9	0.29	0.0	0.00	0.01	0.24	0.04	76	
76 A	14.42	14.41	33.366	24.842	312.2	0.250	5.94	258.7	102.1	2.9	0.29	0.0	0.00	0.00	0.24	0.05	77	14
87	13.53	13.51	33.426	25.073	290.5	0.283	5.61	244.3	94.7	4.1	0.46	2.3	0.06	0.03	0.45	0.15	88	13
95	12.92	12.91	33.375	25.156	282.7	0.306	5.46	237.9	91.1	5.2	0.60	4.3	0.08	0.04	0.35	0.22	96	12
100 ISL	12.51 D	12.50	33.372 D	25.233	275.4	0.323	5.35	D233.0	D 88.4	5.4	0.62	4.6	0.06	0.07	0.31	0.19	101	
111	11.81	11.80	33.355 D	25.353	264.2	0.353	5.05	D220.1	D 82.3								112	11
124	11.17	11.15	33.400	25.505	249.9	0.383	4.77	207.6	76.6	10.2	1.04	11.5	0.02	0.04	0.17	0.15	125	10
125 ISL	11.09 D	11.08	33.417 D	25.533	247.3	0.389	4.66	D203.1	D 74.8	10.5	1.06	11.8	0.02	0.04	0.17	0.14	126	
145	10.25	10.23	33.543	25.778	224.3	0.433	4.12	179.2	64.9	16.1	1.38	17.1	0.00	0.06	0.05	0.04	146	09
150 ISL	10.05 D	10.03	33.578 D	25.840	218.5	0.448	3.99	D173.8	D 62.7	17.5	1.44	18.1	0.00	0.06	0.04	0.04	151	
174	9.38	9.36	33.755	26.089	195.1	0.494	3.31	143.9	51.2	24.1	1.75	23.1	0.00	0.08	0.00	0.02	175	08
200 ISL	9.00 D	8.98	33.868 D	26.239	181.3	0.548	2.89	D125.6	D 44.3	28.1	1.88	25.1	0.00	0.06	0.00	0.02	202	
201	8.96	8.94	33.863	26.242	181.0	0.545	3.00	130.7	46.1	28.2	1.88	25.2	0.00	0.06	0.00	0.02	203	07
230	8.33	8.31	33.989	26.437	162.8	0.594	2.57	111.8	38.9	35.3	2.07	28.1	0.00	0.08			232	06
250 ISL	8.04 D	8.02	34.020 D	26.505	156.6	0.632	2.36	D102.5	D 35.4	39.5	2.19	29.7	0.00	0.07			252	
267	7.79	7.77	34.043	26.561	151.6	0.653	2.06	89.6	30.8	43.1	2.29	31.0	0.00	0.06			269	05
300 ISL	7.57 D	7.54	34.067 D	26.612	147.2	0.708	1.77	D 77.0	D 26.3	48.8	2.45	33.1	0.00	0.15			302	
320	7.20	7.17	34.086	26.680	140.8	0.731	1.46	63.6	21.6	52.3	2.55	34.3	0.00	0.20			323	04
387	6.54	6.51	34.118	26.795	130.5	0.822	1.03	44.9	15.0	62.7	2.77	37.1	0.00	0.03			390	03
400 ISL	6.39 D	6.36	34.126 D	26.822	128.1	0.845	0.95	D 41.1	D 13.7	64.9	2.81	37.6	0.00	0.06			403	
439	6.02	5.98	34.149	26.887	122.1	0.887	0.76	33.1	10.9	71.7	2.93	39.0	0.00	0.16			443	02
500 ISL	5.62 D	5.58	34.196 D	26.975	114.3	0.967	0.53	D 23.1	D 7.5	80.4	3.05	40.4	0.00	0.14			504	
512	5.56	5.52	34.210	26.993	112.6	0.973	0.48	21.0	6.9	82.1	3.07	40.7	0.00	0.14			516	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
30 11.1 N	122 55.5 W	13/04/2013	0412	UTC	3972 m	350 18 kn			1016.0 mb	14.9 C	11.9 C				027

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.63	15.63	33.417	24.613	331.6	0.000	5.81	253.2	102.4	2.9	0.29	0.1	0.00	0.03	0.10	0.02	0	
2	15.63	15.63	33.417	24.613	331.6	0.007	5.81	253.2	102.4	2.9	0.29	0.1	0.00	0.03	0.10	0.02	2	20
10	15.64	15.64	33.419	24.614	331.8	0.033	5.79	252.4	102.1	2.9	0.29	0.0	0.00	0.02	0.09	0.02	10	19
20 ISL	15.64 D	15.64	33.411 D	24.609	332.7	0.067	5.79	D252.2	D102.0	2.9	0.29	0.0	0.00	0.02	0.09	0.02	20	
25	15.63	15.62	33.413	24.613	332.5	0.083	5.78	251.9	101.9	2.9	0.29	0.0	0.00	0.02	0.10	0.01	25	18
30 ISL	15.55 D	15.55	33.411 D	24.629	331.2	0.100	5.80	D252.6	D102.0	2.9	0.29	0.0	0.00	0.01	0.13	0.03	30	
40	14.28	14.28	33.366	24.869	308.5	0.132	6.01	262.0	103.1	3.0	0.30	0.0	0.00	0.00	0.19	0.06	40	17
50	14.06	14.05	33.353	24.905	305.4	0.162	6.03	262.9	103.0	3.1	0.30	0.0	0.00	0.05	0.30	0.12	50	16
62	13.58	13.57	33.348	25.002	296.5	0.198	5.94	258.7	100.4	3.5	0.36	0.4	0.08	0.06	0.93	0.43	62	15
75	12.78	12.77	33.351	25.163	281.5	0.236	5.69	248.1	94.7	5.0	0.55	3.2	0.31	0.00	0.43	0.31	76	14
88	11.94	11.92	33.334	25.312	267.5	0.272	5.37	233.8	87.6	6.5	0.71	6.3	0.04	0.00	0.24	0.18	89	13
100 ISL	11.30 D	11.29	33.369 D	25.457	253.9	0.305	5.01	D218.1 D	80.7	8.5	0.87	9.0	0.03	0.04	0.15	0.11	101	
101	11.28	11.27	33.368	25.459	253.8	0.305	5.07	220.6	81.6	8.7	0.88	9.2	0.03	0.04	0.14	0.10	102	12
112	10.79	10.77	33.430	25.596	240.8	0.333	4.63	201.6	73.8	11.9	1.13	13.0	0.03	0.03	0.07	0.06	113	11
125 ISL	10.29 D	10.28	33.511 D	25.745	226.9	0.366	4.19	D182.6 D	66.2	15.2	1.33	16.3	0.02	0.04	0.04	0.04	126	
126	10.25	10.24	33.514	25.755	226.0	0.365	4.18	181.9	65.8	15.5	1.34	16.5	0.02	0.04	0.04	0.03	127	10
140	9.75	9.73	33.570	25.883	214.0	0.396	4.07	177.1	63.4	17.9	1.44	18.3	0.02	0.08	0.02	0.03	141	09
150 ISL	9.56 D	9.54	33.689 D	26.007	202.4	0.420	3.59	D156.4 D	55.8	20.7	1.57	20.2	0.02	0.10	0.01	0.03	151	
170	9.16	9.15	33.824	26.177	186.6	0.456	3.10	134.9	47.8	26.3	1.83	24.1	0.03	0.14	0.00	0.02	171	08
200	8.78	8.76	33.989	26.368	169.0	0.509	2.42	105.3	37.0	33.5	2.10	27.6	0.03	0.16	0.00	0.02	202	07
230	8.24	8.21	34.033	26.487	158.1	0.558	2.20	95.7	33.3	38.4	2.20	29.4	0.00	0.02			232	06
250 ISL	7.99 D	7.96	34.072 D	26.555	151.9	0.593	1.83	D 79.4 D	27.4	43.1	2.34	31.1	0.00	0.04			252	
270	7.60	7.57	34.089	26.625	145.4	0.619	1.59	69.2	23.7	47.8	2.47	32.8	0.00	0.05			272	05
300 ISL	7.34 D	7.31	34.111 D	26.680	140.6	0.667	1.30	D 56.5 D	19.2	51.9	2.58	34.1	0.00	0.06			302	
320	7.17	7.14	34.121	26.712	137.8	0.690	1.16	50.6	17.2	54.7	2.66	35.0	0.00	0.06			322	04
381	6.64	6.61	34.156	26.812	128.9	0.771	0.84	36.5	12.2	63.5	2.84	37.2	0.00	0.12			384	03
400 ISL	6.53 D	6.49	34.162 D	26.832	127.2	0.801	0.76	D 33.2 D	11.1	65.7	2.88	37.6	0.01	0.11			403	
441	6.24	6.20	34.180	26.885	122.6	0.846	0.64	28.0	9.3	70.4	2.97	38.6	0.02	0.10			445	02
500 ISL	5.88 D	5.84	34.232 D	26.971	114.9	0.924	0.43	D 18.6 D	6.1	77.9	3.05	39.8	0.02	0.14			504	
516	5.78	5.73	34.233	26.985	113.7	0.935	0.42	18.1	5.9	79.9	3.07	40.1	0.02	0.15			520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1304 STATION 93.4 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 56.9 N	117 17.5 W	07/04/2013	0333	UTC	43 m	200 04 kn			1016.0 mb	16.0 C	14.8 C				002

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.41	15.41	33.575	24.784	315.4	0.000	5.89	256.6	103.5	8.9	0.62	4.4	0.09	0.41	1.76	0.54	0	
1	15.41	15.41	33.575	24.784	315.4	0.003	5.89	256.6	103.5	8.9	0.62	4.4	0.09	0.41	1.76	0.54	1	05
5	14.75	14.75	33.573	24.926	301.9	0.016	5.84	254.5	101.3	9.2	0.66	4.8	0.09	0.29	2.33	0.68	5	04
10	13.67	13.67	33.572	25.153	280.5	0.030	5.38	234.2	91.2	10.8	0.81	7.3	0.12	0.25	2.34	1.01	10	03
20	11.63	11.62	33.598	25.572	240.9	0.056	3.66	159.5	59.5	16.4	1.42	16.4	0.19	0.35	1.26	0.82	20	02
30	11.21	11.20	33.640	25.681	230.8	0.080	3.21	139.6	51.7	19.2	1.62	19.2	0.17	0.35	1.12	0.75	30	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

A) INCUBATION LIGHT INTENSITIES WERE PERCENT RESPECTIVELY.

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 76.7 49.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
35 5.6 N	120 46.7 W	23/04/2013	1642 UTC	05 m	1201 - 1915 PST	1201 PST	1914 PST	2135.1 mg C/m2	071

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	11.13	33.868	25.872	5.24	84.5	20.0	1.34	16.0	0.17	0.18	12.78	0.54	54. A	268.9	223.7	246.3	1.1
3	11.09	33.867	25.878	5.25	84.5	20.4	1.38	16.2	0.17	0.23	11.76	1.43	40.	259.2	255.2	257.2	0.52
4	10.78	33.860	25.927	4.82	77.0	22.4	1.53	18.3	0.17	0.17	9.62	1.12	29.	191.7	189.3	190.5	0.40
8	10.33	33.865	26.009	4.38	69.3	24.2	1.69	20.2	0.16	0.14	7.45	0.87	8.6	112.7	116.3	114.5	0.45
16	10.12	33.883	26.061	4.25	66.9	24.0	1.67	20.1	0.16	0.15	10.13	1.29	0.74	10.6	24.9	17.7	0.48
18	10.12	33.892	26.068	4.30	67.8	24.1	1.67	19.9	0.16	0.16	10.44	1.42	0.40	9.7	10.9	10.3	0.47

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 76.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 23.6 N	122 16.4 W	22/04/2013	1658 UTC	20 m	1205 - 1910 PST	1207 PST	1909 PST	623.3 mg C/m2	064

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	12.17	33.406	25.319	6.14	100.9	5.7	0.80	6.3	0.05	0.22	0.75	0.12	86. A	14.9	14.0	14.4	0.14
13	12.04	33.409	25.347	6.15	100.6	5.7	0.80	6.2	0.05	0.19	0.85	0.12	37.	17.1	16.4	16.7	0.46
16	12.05	33.416	25.350	6.14	100.6	5.7	0.80	6.3	0.05	0.21	0.78	0.13	29.	16.5	16.4	16.4	0.18
24	12.06	33.413	25.348	6.13	100.4	5.8	0.80	6.3	0.05	0.22	0.74	0.23					
32	11.97	33.437	25.383	6.05	98.9	6.2	0.86	7.0	0.05	0.35	0.76	0.20	8.6	10.2	9.9	10.1	0.16
40	11.93	33.436	25.390	6.05	98.9	6.1	0.86	7.0	0.05	0.34	0.79	0.22					
50	11.83	33.436	25.409	5.95	96.9	6.7	0.89	7.5	0.05	0.35	0.60	0.19					
58	11.94	33.509	25.446	5.98	97.7	6.9	0.93	8.0	0.05	0.56	0.62	0.14	1.2	1.5	1.5	1.5	0.18
69	11.82	33.506	25.467	5.94	96.9	7.0	0.95	8.2	0.05	0.57	0.62	0.19	0.50	0.55	0.54	0.54	0.15

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 80.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 9.1 N	121 10.0 W	20/04/2013	1616 UTC	18 m	1200 - 1911 PST	1203 PST	1911 PST	574.5 mg C/m2	057

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	11.88	33.594	25.522	5.86	95.7	7.5	0.92	8.6	0.18	0.98	0.77	0.28	84. A	12.5	12.6	12.6	0.17
10	11.86	33.607	25.534	5.85	95.6	7.5	0.92	8.6	0.18	1.00	0.79	0.28	43.	15.9	15.9	15.9	0.23
14	11.87	33.595	25.525	5.86	95.8	7.4	0.91	8.6	0.18	0.96	0.79	0.27	30.	14.4	13.4	13.9	0.19
23	11.86	33.595	25.525	5.86	95.7	7.4	0.91	8.6	0.18	0.95	0.76	0.30					
30	11.86	33.596	25.527	5.85	95.5	7.4	0.92	8.6	0.18	0.98	0.75	0.30	7.7	12.8	12.1	12.4	0.17
40	11.86	33.595	25.527	5.84	95.4	7.4	0.92	8.5	0.18	1.01	0.83	0.31					
52	11.86	33.595	25.527	5.87	95.8	7.4	0.92	8.6	0.18	1.03	0.80	0.30	1.2	1.6	1.6	1.6	0.17
62	11.41	33.570	25.592	5.59	90.4	8.4	0.97	9.4	0.18	0.97	0.52	0.26	0.51	0.61	0.48	0.55	0.12

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 80.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 50.6 N	123 52.9 W	21/04/2013	2012 UTC	19 m	1310 - 1915 PST	1214 PST	1919 PST	79.9 mg C/m2	061

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.12	33.260	24.819	5.97	102.0	2.8	0.31	0.0	0.00	0.06	0.17	0.04	85. A	2.3	2.4	2.3	0.11
11	14.11	33.253	24.816	5.95	101.7	2.8	0.31	0.0	0.00	0.03	0.17	0.04	41.	2.3	2.3	2.3	0.15
16	14.10	33.254	24.818	5.95	101.6	2.8	0.31	0.0	0.00	0.03	0.17	0.05	27.	2.2	2.1	2.1	0.14
29	14.08	33.253	24.824	5.96	101.7	2.8	0.31	0.0	0.00	0.02	0.17	0.04	9.6	1.4	1.3	1.4	0.25
40	14.07	33.254D	24.828	5.96	101.6	2.8	0.31	0.0	0.00	0.02	0.18	0.05					
47	14.06	33.254	24.828	5.96	101.6	2.8	0.31	0.0	0.00	0.02	0.19	0.05					
55	14.06	33.254	24.831	5.97	101.9	2.7	0.31	0.0	0.00	0.02	0.19	0.05	1.2	0.11	0.15	0.13	0.14
65	13.96	33.251	24.848	5.96	101.5	2.7	0.31	0.0	0.00	0.03	0.22	0.06	0.52	0.03	0.14	0.09	0.17

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 81.8 46.9

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 16.7 N	120 3.0 W	16/04/2013	1721 UTC	07 m	1200 - 1910 PST	1200 PST	1857 PST	2269.3 mg C/m2	041

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	10.58	33.928	26.016	4.60	73.2	19.4	1.45	17.0	0.18	0.21	6.73	1.41	64. A	135.9	146.6	141.3	0.42
6	10.59	33.927	26.013	4.59	73.0	19.3	1.42	16.9	0.18	0.18	6.98	1.60	27.	128.5	130.1	129.3	0.63
4	10.59	33.928	26.014	4.64	73.8	19.1	1.41	16.8	0.18	0.19	6.54	1.53	42.	154.3	153.8	154.0	0.58
11	10.58	33.925	26.013	4.61	73.4	19.0	1.41	16.7	0.18	0.17	6.72	1.44	9.0	139.6	130.2	134.9	0.46
20	10.51	33.930	26.030	4.46	70.9	19.5	1.46	17.3	0.18	0.19	6.99	1.49	1.2	14.9	14.1	14.5	0.37
24	10.48	33.929	26.035	4.38	69.5	19.9	1.47	17.6	0.17	0.20	6.91	1.61	0.52	8.1	8.4	8.3	0.44

A) INCUBATION LIGHT INTENSITIES WERE 58.6, 38.0, 27.0, 8.68, 1.11, 0.49 PERCENT RESPECTIVELY.

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 33.6 N	120 47.6 W	19/04/2013	2002 UTC	14 m	1254 - 1905 PST	1202 PST	1904 PST	590.0 mg C/m2	052

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	12.69	33.546	25.328	5.97	99.1	6.2	0.76	5.6	0.17	0.29	0.86	0.35	80. A	18.8	18.0	18.4	0.28
9	12.68	33.543	25.329	6.00	99.6	6.2	0.76	5.6	0.17	0.20	0.88	0.41	37.	20.0	20.6	20.3	0.17
12	12.65	33.544	25.334	5.97	99.1	6.2	0.76	5.6	0.17	0.21	0.82	0.37	27.	18.9	19.3	19.1	0.23
22	12.57	33.551	25.357	5.95	98.7	6.1	0.76	5.5	0.17	0.19	0.92	0.41	9.0	15.7	15.7	15.7	0.30
32	12.53	33.549	25.364	5.94	98.3	6.2	0.76	5.6	0.17	0.23	0.92	0.45					
40	12.45	33.545	25.375	5.89	97.4	6.3	0.78	5.7	0.18	0.37	0.79	0.41	1.2	2.5	3.2	2.8	0.16
50	12.31	33.546	25.404	5.79	95.5	6.8	0.85	6.4	0.25	0.68	0.50	0.28	0.42	0.79	0.77	0.78	0.19

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 83.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 14.6 N	123 30.3 W	18/04/2013	1932 UTC	26 m	1240 - 1910 PST	1213 PST	1909 PST	147.8 mg C/m2	048

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.95	33.427	24.770	5.82	101.2	2.8	0.28	0.0	0.00	0.09	0.12	0.01	89. A	2.0	1.5	1.7	0.21
16	14.95	33.438	24.781	5.84	101.6	2.8	0.28	0.0	0.00	0.07	0.11	0.01	39.	1.7	1.6	1.6	0.14
22	14.92	33.438	24.786	5.88	102.2	2.8	0.28	0.0	0.00	0.06	0.11	0.02	27.	1.5	1.5	1.5	0.20
32	14.89	33.426	24.785	5.83	101.3	2.8	0.28	0.0	0.00	0.04	0.12	0.01					
41	14.81	33.412	24.792	5.85	101.4	2.8	0.29	0.0	0.00	0.05	0.13	0.02	8.9	1.5	1.6	1.5	0.22
53	14.08	33.331	24.884	5.93	101.3	2.8	0.30	0.0	0.00	0.08	0.22	0.03					
66	13.40	33.246	24.958	6.01	101.1	3.0	0.32	0.0	0.00	0.10	0.39	0.07					
76	12.92	33.171	24.998	6.03	100.5	3.3	0.36	0.3	0.05	0.08	0.57	0.25	1.1	2.0	2.0	2.0	0.14
84	12.63	33.154	25.040	5.98	99.0	3.5	0.40	0.7	0.10	0.19	0.54	0.20					
90	12.38	33.127	25.067	6.00	98.7	3.6	0.42	0.9	0.14	0.28	0.44	0.19	0.49	0.90	1.0	0.96	0.10

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 29.4 N	119 19.4 W	10/04/2013	1808 UTC	08 m	1155 - 1850 PST	1158 PST	1848 PST	1067.7 mg C/m2	019

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.33	33.553	25.208	6.00	101.0	6.1	0.62	4.4	0.09	0.15	2.14	0.49	68. A	53.7	54.4	54.1	0.47
5	13.21	33.557	25.234	6.02	101.2	6.0	0.63	4.3	0.08	0.21	2.36	0.57	38.	60.8	58.9	59.8	0.46
7	13.17	33.553	25.240	6.02	101.0	6.0	0.62	4.3	0.09	0.20	2.35	0.64	26.	51.4	50.2	50.8	0.46
14	13.08	33.553	25.257	5.95	99.7	6.2	0.64	4.5	0.09	0.17	2.73	0.66	6.8	51.8	53.7	52.8	0.44
23	12.96	33.556	25.284	5.79	96.8	7.0	0.69	5.4	0.09	0.14	2.84	0.72	1.2	10.3	10.4	10.4	0.26
28	12.63	33.557	25.350	5.60	92.9	7.8	0.73	6.5	0.09	0.20	2.08	0.65	0.46	1.9	2.5	2.2	0.22

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 9.1 N	120 1.1 W	15/04/2013	1641 UTC	15 m	1200 - 1858 PST	1200 PST	1856 PST	459.3 mg C/m2	036

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	11.92	33.676	25.577	5.75	94.1	10.4	1.05	10.0	0.15	0.86	0.68	0.58	81. A	14.9	13.1	14.0	0.25
9	11.91	33.679	25.581	5.74	93.9	10.6	1.07	10.1	0.16	0.85	0.71	0.60	40.	14.9	16.6	15.8	0.22
13	11.91	33.675	25.578	5.75	94.0	10.6	1.08	10.1	0.16	0.86	0.62	0.59	26.	13.1	13.1	13.1	0.35
24	11.91	33.674	25.579	5.73	93.8	10.6	1.09	10.1	0.16	0.86	0.66	0.51	8.6	10.9	11.4	11.2	0.38
35	11.87	33.676	25.587	5.72	93.5	10.7	1.09	10.2	0.16	0.98	0.63	0.68					
45	11.75	33.677	25.611	5.54	90.2	11.1	1.12	10.7	0.17	1.03	0.52	0.70	1.00	1.4	1.2	1.3	0.19
52	10.98	33.695	25.767	4.31	69.1	16.9	1.43	15.7	0.26	0.93	0.30	0.80	0.49	0.29	0.33	0.31	0.22

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 39.7 N	121 2.3 W	17/04/2013	1720 UTC	15 m	1210 - 1903 PST	1204 PST	1904 PST	553.7 mg C/m2	044

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.15	33.504	25.205	6.03	101.1	4.6	0.58	3.3	0.13	0.17	0.72	0.22	81. A	15.2	12.7	13.9	0.19
11	13.14	33.504	25.207	6.05	101.4	4.6	0.58	3.2	0.13	0.17	0.66	0.25	32.	19.4	17.4	18.4	0.17
14	13.15	33.506	25.207	6.02	101.0	4.5	0.58	3.2	0.13	0.18	0.74	0.16	24.	15.7	14.8	15.2	0.18
24	13.12	33.517	25.222	6.01	100.8	4.6	0.58	3.3	0.13	0.21	0.78	0.11	8.6	14.3	15.0	14.7	0.19
34	13.07	33.518	25.234	5.98	100.2	4.8	0.62	3.7	0.14	0.31	0.70	0.18					
44	12.96	33.528	25.265	5.93	99.0	5.2	0.69	4.4	0.15	0.59	0.55	0.26	1.1	2.0	2.2	2.1	0.16
52	12.94	33.534	25.272	5.91	98.6	5.3	0.68	4.4	0.15	0.56	0.66	0.13	0.49	0.94	1.1	1.0	0.12

A) INCUBATION LIGHT INTENSITIES WERE 58.6, 38.0, 27.0, 8.68, 1.11, 0.49 PERCENT RESPECTIVELY.

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 25.0 N	117 54.7 W	09/04/2013	1956 UTC	09 m	1250 - 1850 PST	1153 PST	1845 PST	2938.3 mg C/m2	011

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.22	33.566	25.033	6.23	106.9	2.0	0.34	1.3	0.03	0.11	5.70	0.21	71. A	143.1	135.9	139.5	2.7
6	14.09	33.564	25.060	6.31	107.9	1.9	0.35	1.0	0.03	0.12	6.14	0.30	36.	142.5	167.8	155.1	0.71
9	13.86	33.563	25.107	6.30	107.2	2.0	0.36	1.2	0.03	0.18	7.50	0.49	22.	147.0	135.9	141.4	0.80
15	13.72	33.566	25.138	6.03	102.4	2.6	0.41	2.2	0.04	0.17	7.78	0.59	7.7	123.7	150.3	137.0	0.59
26	11.74	33.588	25.544	4.09	66.5	13.6	1.26	14.4	0.06	0.17	1.74	0.52	1.2	4.4	4.2	4.3	0.28
31	11.28	33.609	25.643	3.60	58.0	16.6	1.47	17.7	0.04	0.09	0.75	0.50	0.51	0.64	0.85	0.75	0.23

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 5.0 N	122 40.8 W	13/04/2013	1729 UTC	21 m	1210 - 1900 PST	1211 PST	1900 PST	112.1 mg C/m2	029

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
3	15.32	33.411	24.678	5.81	101.8	2.9	0.30	0.0	0.00	0.26	0.12	0.03	80. A	2.6	2.5	2.5	0.14
13	15.33	33.410	24.677	5.80	101.7	2.9	0.29	0.0	0.00	0.06	0.12	0.03	39.	2.5	2.3	2.4	0.12
18	15.33	33.410	24.676	5.81	101.8	2.9	0.28	0.0	0.00	0.06	0.14	0.01	27.	2.4	2.6	2.5	0.10
32	15.31	33.410	24.681	5.81	101.8	2.9	0.28	0.0	0.00	0.07	0.13	0.02	9.6	1.6	2.0	1.8	0.14
42	15.26	33.410	24.694	5.82	101.9	2.9	0.28	0.0	0.00	0.08	0.15	0.02					
50	14.59	33.377	24.812	5.96	102.8	3.0	0.29	0.0	0.00	0.08	0.28	0.03					
59	13.86	33.356	24.950	6.07	103.2	3.2	0.31	0.0	0.00	0.08	0.38	0.12	1.3	0.49	0.65	0.57	0.20
69	13.35	33.336	25.039	5.80	97.5	3.9	0.43	1.5	0.06	0.08	0.65	0.43	0.64	0.78	0.70	0.74	0.21

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 93.3 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 20.7 N	118 33.8 W	07/04/2013	1902 UTC	10 m	1217 - 1852 PST	1156 PST	1845 PST	356.4 mg C/m2	007

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.67	33.490	24.880	6.14	106.2	2.1	0.30	0.0	0.03		0.81	0.05	74. A	14.3	15.8	15.0	0.28
7	14.67	33.490	24.880	6.13	106.0	2.2	0.34	0.0	0.03		0.88	0.01	34.	15.1	14.1	14.6	0.42
9	14.66	33.490	24.882	6.11	105.6	2.2	0.35	0.1	0.00		0.78	0.13	25.	12.7	12.7	12.7	0.10
17	14.46	33.492	24.928	6.12	105.5	2.1	0.34	0.0	0.00		0.76	0.14	7.4	12.2	12.6	12.4	0.27
23	14.13	33.490	24.995	6.19	105.9	2.0	0.34	0.0	0.00		1.07	0.05					
30	12.67	33.474	25.277	6.10	101.2	3.1	0.51	2.2	0.03		1.30	0.20	1.00	4.6	4.2	4.4	0.37
35	12.48	33.456	25.301	6.03	99.7	3.5	0.57	2.9	0.04		1.27	0.30	0.46	1.8	1.4	1.6	0.36

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 93.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 50.9 N	119 34.8 W	11/04/2013	1513 UTC	16 m	1159 - 1855 PST	1159 PST	1854 PST	322.1 mg C/m2	022

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	14.18	33.358	24.883	5.99	102.5	3.4	0.33	0.1	0.03	0.05	0.46	0.16	91. A	6.6	6.9	6.7	0.17
10	14.16	33.358	24.886	6.00	102.7	3.3	0.33	0.1	0.02	0.02	0.47	0.14	38.	9.7	9.2	9.4	0.26
14	14.15	33.358	24.888	6.02	102.9	3.4	0.33	0.1	0.03	0.03	0.48	0.12	26.	8.4	8.1	8.2	0.25
25	14.08	33.372	24.914	6.00	102.5	3.4	0.34	0.2	0.03	0.03	0.50	0.12	9.1	8.0	8.0	8.0	0.18
36	14.01	33.396	24.949	6.04	103.0	3.4	0.35	0.4	0.02	0.04	0.57	0.15					
47	13.92	33.389	24.963	6.05	102.9	3.4	0.36	0.4	0.04	0.05	0.85	0.16	1.1	1.8	1.8	1.8	0.40
55	13.91	33.389	24.966	6.03	102.6	3.4	0.36	0.4	0.03	0.05	0.73	0.20	0.51	0.68	0.79	0.73	0.19

RV BELL M SHIMADA — CALCOFI CRUISE 1304 — STATION 93.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
30 30.3 N	122 13.4 W	12/04/2013	1948 UTC	22 m	1250 - 1900 PST	1210 PST	1902 PST	74.7 mg C/m2	026

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	16.16	33.525	24.579	5.69	101.4	2.7	0.28	0.2	0.00	0.12	0.09	0.01	87. A	1.7	1.6	1.7	0.14
14	16.16	33.534	24.587	5.70D	103.7	2.7	0.28	0.0	0.00	0.03	0.09	0.01	38.	2.1	1.8	2.0	0.09
18	16.16	33.527	24.580	5.69	101.4	2.7	0.28	0.0	0.00	0.04	0.09	0.01	28.	1.3	1.3	1.3	0.16
34	16.16	33.525	24.580	5.69	101.5	2.7	0.28	0.0	0.00	0.12	0.08	0.02	9.3	0.70	0.65	0.67	0.17
45	16.15	33.526	24.583	5.70	101.5	2.6	0.28	0.0	0.00	0.07	0.09	0.00					
56	15.01	33.474	24.799	5.77	100.5	2.7	0.28	0.0	0.00	0.07	0.11	0.03					
66	14.58	33.359	24.802	5.94	102.5	2.9	0.30	0.0	0.00	0.08	0.16	0.01	1.00	0.05	1.5	0.75	0.21
76	14.42	33.366	24.842	5.94	102.1	2.9	0.29	0.0	0.00	0.00	0.24	0.05	0.50	0.17	0.13	0.15	0.17

A) INCUBATION LIGHT INTENSITIES WERE 58.6, 38.0, 27.0, 8.68, 1.11, 0.49 PERCENT RESPECTIVELY.

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505mm

Line	Sta.	Latitude N	Longitude W	Date Mo/Day	Time (PST) Start	Time (PST) End	Water Volume Strained (m^3)	Max. Tow Depth (m)	Volume per 1000 m^3 Strained Total (cm^3)	Volume per 1000 m^3 Strained Small (cm^3)
63.3	52.0	37 18.6	122 37.1	04/29	1751	1758	164	69	110	110
63.3	70.0	36 42.5	123 54.9	04/28	1820	1841	467	207	144	144
63.3	80.0	36 22.6	124 37.9	04/28	1157	1217	410	208	156	156
64.0	52.7	37 09.7	122 35.1	04/30	0021	0030	204	88	686	686
65.0	69.3	36 26.3	123 39.0	04/27	2125	2145	425	202	275	245
66.7	50.0	36 47.2	122 03.6	04/27	0940	1001	448	205	36	36
66.7	60.0	36 27.2	122 46.4	04/26	1840	1901	509	197	63	49
66.7	70.0	36 07.2	123 29.2	04/26	1302	1323	464	196	91	91
66.7	80.0	35 47.1	124 12.0	04/26	0631	0651	325	216	206	206
67.6	60.4	36 17.1	122 41.6	04/27	0017	0037	476	213	124	124
68.4	84.1	35 21.4	124 16.0	04/26	0050	0110	369	210	301	301
70.0	51.0	36 10.2	121 44.6	04/24	0452	0512	426	208	150	150
70.0	60.0	35 53.0	122 21.6	04/24	1055	1115	434	207	141	108
70.0	70.0	35 32.9	123 04.3	04/24	1714	1734	425	201	280	280
70.0	74.8	35 23.2	123 24.7	04/24	2120	2140	378	199	313	313
70.0	80.0	35 13.1	123 46.6	04/25	0905	0925	342	206	263	263
70.0	90.0	34 53.0	124 28.7	04/25	1629	1649	406	194	49	49
76.7	49.0	35 05.4	120 46.7	04/23	0925	0929	85	32	152	152
76.7	51.0	35 01.2	120 55.2	04/23	0220	0237	388	172	235	235
76.7	55.0	34 53.3	121 12.0	04/22	2250	2310	473	210	152	152
76.7	60.0	34 43.4	121 32.9	04/22	1623	1643	420	207	248	248
76.7	70.0	34 23.3	122 15.1	04/22	0806	0826	428	213	110	89
76.7	80.0	34 03.2	122 56.4	04/22	0315	0335	402	215	92	92
76.7	90.0	33 43.1	123 37.9	04/21	2130	2150	438	200	43	43
80.0	50.5	34 27.6	120 29.9	04/19	2311	2313	59	19	67	67
80.0	51.0	34 27.0	120 31.4	04/20	0049	0055	134	59	187	187
80.0	55.0	34 19.0	120 48.0	04/20	0428	0448	477	208	199	199
80.0	60.0	34 09.0	121 08.8	04/20	0724	0745	466	218	56	56
80.0	70.0	33 49.2	121 50.5	04/20	1509	1529	448	215	56	56
80.0	80.0	33 29.3	122 32.2	04/20	2317	2337	484	215	76	76
80.0	90.0	33 09.1	123 13.1	04/21	0631	0651	501	198	24	24
80.0	100.0	32 50.4	123 52.6	04/21	1344	1405	471	211	38	38
81.7	43.5	34 22.8	119 48.1	04/16	0328	0334	135	48	192	192
81.8	46.9	34 16.5	120 00.6	04/16	0820	0842	500	212	80	80
83.3	39.4	34 15.6	119 24.5	04/15	2332	2334	58	18	515	515
83.3	40.6	34 13.4	119 25.0	04/15	2216	2218	54	20	738	738
83.3	42.0	34 10.4	119 30.7	04/15	2026	2046	484	211	128	128
83.3	55.0	33 44.8	120 24.3	04/19	1742	1802	449	213	89	89
83.3	60.0	33 34.6	120 47.4	04/19	1315	1336	413	208	75	75
83.3	70.0	33 14.7	121 26.7	04/19	0700	0721	465	210	77	77
83.3	80.0	32 54.6	122 07.6	04/19	0103	0123	485	218	169	169
83.3	90.0	32 34.7	122 48.9	04/18	1851	1912	454	207	55	55
83.3	100.0	32 14.5	123 29.8	04/18	1244	1305	491	195	37	37
86.7	33.0	33 53.4	118 29.3	04/10	0014	0018	94	34	417	417
86.7	35.0	33 49.4	118 37.6	04/10	0257	0318	447	204	165	165
86.7	40.0	33 39.3	118 58.5	04/10	0719	0739	457	202	160	160
86.7	45.0	33 29.5	119 19.1	04/10	1129	1149	445	204	94	94
86.7	50.0	33 19.4	119 39.6	04/15	0440	0448	174	62	92	92
86.7	55.0	33 09.5	120 00.4	04/15	0955	1016	496	204	293	293
86.7	60.0	32 59.3	120 21.2	04/17	0216	0237	536	219	306	306
86.7	70.0	32 39.5	121 01.8	04/17	1040	1060	452	214	117	117
86.7	80.0	32 19.4	121 43.0	04/17	1750	1810	469	216	79	79
86.7	90.0	31 59.2	122 23.3	04/17	2337	2358	472	218	64	64
86.7	100.0	31 39.0	123 04.0	04/18	0551	0611	513	213	66	66
86.8	32.5	33 52.8	118 27.3	04/09	2251	2254	53	19	1966	1966
88.5	30.1	33 38.9	118 05.1	04/09	1921	1923	63	16	726	726
90.0	27.7	33 29.5	117 45.3	04/09	1645	1648	70	24	86	86
90.0	28.0	33 29.0	117 46.1	04/09	1548	1554	118	56	271	271
90.0	30.0	33 25.1	117 54.5	04/09	1322	1342	430	205	121	121
90.0	35.0	33 15.0	118 15.0	04/09	846	0906	467	200	148	103
90.0	45.0	32 55.2	118 56.0	04/10	1930	1951	412	201	163	163
90.0	53.0	32 38.9	119 29.0	04/14	1946	2007	421	201	221	221
90.0	60.0	32 25.0	119 57.6	04/14	1440	1500	427	217	52	52
90.0	70.0	32 05.4	120 38.8	04/14	0650	0711	526	203	48	48
90.0	80.0	31 45.1	121 19.3	04/14	0012	0032	449	221	58	58
90.0	90.0	31 25.0	121 59.7	04/13	1755	1815	423	208	156	132
90.0	100.0	31 04.9	122 40.0	04/13	1101	1121	507	193	59	59
90.0	110.0	30 44.9	123 19.8	04/13	0350	0411	439	214	55	39
93.3	26.7	32 57.4	117 18.5	04/06	1838	1858	416	207	183	183
93.3	28.0	32 54.4	117 24.0	04/06	2204	2224	470	210	141	141
93.3	30.0	32 50.7	117 31.9	04/07	0040	0101	433	213	69	69
93.3	35.0	32 40.8	117 52.3	04/07	0422	0442	465	207	123	123
93.3	40.0	32 30.9	118 12.7	04/07	0814	0835	446	211	81	63
93.3	45.0	32 20.8	118 33.2	04/07	1328	1347	466	204	129	129
93.3	50.0	32 10.9	118 53.3	04/07	1751	1811	430	215	79	79
93.3	55.0	32 00.8	119 14.1	04/11	0335	0356	461	208	217	217
93.3	60.0	31 50.9	119 33.6	04/11	0614	0634	443	218	178	178
93.3	70.0	31 30.9	120 15.0	04/11	1416	1436	493	191	53	53
93.3	80.0	31 10.7	120 55.5	04/11	2151	2211	570	196	123	123
93.3	90.0	30 51.0	121 35.3	04/12	0457	0517	523	212	54	54
93.3	100.0	30 30.0	122 13.2	04/12	1255	1316	534	211	17	17
93.3	110.0	30 10.9	122 55.1	04/12	2112	2132	494	195	45	45
93.4	26.4	32 56.9	117 17.5	04/06	1946	1949	58	21	2465	2465